Assessment of Assessments on Air, Climate Change, Biodiversity and Waste in Kazakhstan and Kyrgyzstan

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This Assessment of Assessments (AoA) is a contribution to the EfE Mid-term Review within efforts toward SEIS by the EEA, UNECE and their partners. It is commissioned by UNECE to assess the state of play in the environmental reporting, indicators and statistics on Biodiversity, Air, Climate Change and Wastes in selected EECCA countries, inviting CAREC and REC Moldova to implement the activity in use of the Astana European Assessment of Assessments' Methodology and relevant web tools and facilities at the EEA EE-AoA web-portal. CAREC developed it in cooperation with the Ministry of Environmental Protection (MoEP) of Kazakhstan and the State Agency on Environmental Protection and Forestry (SAEPF) of Kyrgyzstan and with substantial contributions of the group of national experts from two countries. The Government of Switzerland has granted funds to CAREC to develop this AoA.

Commitment by Central Asia toward SEIS

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Annex – 4: Country Tables on relevance of selected assessments to the UNECE environmental indicators, EEA set of sub-topics and subjects

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LIST OF ABBREVIATIONS

AoA	Assessment of Assessments
ALRM	The Agency for Land Resources Management of the Ministry of Regional Development of the Republic of Kazakhstan
ASK	Agency of Statistics of the Republic of Kazakhstan
CA	Central Asia
CAREC	Regional Environmental Centre for Central Asia
CERC	Committee on Environmental Regulation and Control of the Ministry of Environmental Protection of the Republic of Kazakhstan
CGSU	Committee of Geology and Subsoil Use of the Republic of Kazakhstan
CFH	Committee on Forestry and Hunting of the Ministry of Environmental Protection of the Republic of Kazakhstan
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CWR	Committee on Water Resource of the Ministry of Environmental Protection of the Republic of Kazakhstan
DPSR	Drivers– Pressure – State – Impacts – Response
DWR	Department of water resource under the Ministry of Agriculture and Melioration of Kyrgyz Republic
EEA	European Environment Agency
EE-AoA	Europe's Environment - Assessment of Assessments
EECCA	Eastern Europe, the Caucasus and Central Asia
EfE	Environment for Europe
ENPI	European Neighborhood and Partnership Instrument
EPSD	Environmental protection and sustainable development of the Republic Kazakhstan, Statistical Yearbooks
EPR	Environmental Performance Review
EU	European Union
FAO	UN Food and Agriculture Organisation
FLERMONECA	EU project for Central Asia on Forest and Biodiversity Governance including environmental monitoring
GEF	Global Environment Facility
GHG	Green house gases
IAC EP	Information and Analytical Center on Environmental Protection of the Ministry of Environmental Protection of the Republic of Kazakhstan
IBSE	Information Bulletins on the State of Environment in the Republic of Kazakhstan
KazHydromet	Hydrometeorological Service of the Ministry of Environmental Protection of the Republic of Kazakhstan
KazRIEC	Kazakh Research Institute of Environment and Climate
Kyrgyz Hydromet	Agency of Hydrometeorology under the Ministry of Emergencies and Civil Defense of Kyrgyzstan
MA	Ministry of Agriculture of the Republic of Kazakhstan
MAM	Ministry of Agriculture and Melioration of Kyrgyzstan
MDG	Millennium Development Goals
MEAs	Multilateral Environmental Agreements
MES	Ministry of Education and Science of the Republic of Kazakhstan
MoEP	Ministry of Environmental Protection of the Republic of Kazakhstan
MOG	Ministry of Oil and Gas of the Republic of Kazakhstan
MTC	Ministry of Transport and Communications of the Republic of Kazakhstan

MINT	Ministry of Industries and New Technologies of the Republic of Kazakhstan
MONECA	Environmental Monitoring in CA (the component of Forest and Biodiversity Governance Including Environmental Monitoring EU project)
NFEI	National Fund of the Environmental Information of Kazakhstan
NIR GHG	National Inventory Report on GHG
NR-BC	National Report to Basel Convention
NR – CBD	National Report to UN CBD
NR GRF	National Report on the state of genetic resources of forests of Kyrgyzstan
NR-TAP	National Report to the UNECE Convention on Long-range Transboundary Air Pollution of the Kyrgyz Republic
NSC	National State Committee of the Kyrgyz Republic
NSoERs	National State of Environment Reports
ODA	Official Development Aid
OECD	Organisation for Economic Co-operation and Development
POPs	Persisted organic pollutants
SAEPF	State Agency on Environmental Protection and Forestry of the Kyrgyz Republic
SEIS	Shared Environmental Information System
SLCF	Short – lived climate forcers
SNC	Second National Communication for UNFCCC
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe
UNECE JTFEI	UNECE Joint Task Force on Environmental Indicators
UNECE WGMA	UNECE Working Group on Environmnetal Monitoring and Assessment
UNEP	United Nations Environmental Programme
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
WB	World Bank
WBK	Working Body of Kazakhstan on NIR GHG

EXECUTIVE SUMMARY

Present Assessment of Assessments (AoA) report for Kazakhstan and Kyrgyzstan on Air, Biodiversity, Climate Change and Wastes is produced by the Regional Environmental Centre for Central Asia (CAREC). It was commissioned under the auspices of the United Nations Economic Commission for Europe Working Group in Environmental Monitoring and Assessments (UNECE WGEMA). The Government of Switzerland provided funding to CAREC for development of this report.

This AoA report assesses the state of play in the environmental data, statistics and reporting in Kazakhstan and Kyrgyzstan on the above thematic areas and assesses the use of UNECE set of environmental indicators for countries of Eastern Europe, Caucasus and Central Asia and their substantial relevance to the frameworks and sub-topics used for assessing said thematic areas in member countries of the European Environmental Agency (EEA).

It was prepared in consultations with the EEA and in use of the Assessment of Assessments' Methodology[1] along with web tools[2] specially designed and developed by EEA for the Europe's Environment: Assessment of Assessments[3], which was one of the key products of 7th Environment for Europe Ministerial Conference in Astana in 2011 (Astana Conference).

Strong interest of the Ministry of Environmental Protection of Kazakhstan (MoEP) and of the State Agency of Environmental Protection and Forestry of Kyrgyzstan (SAEPF) to exercise this AoA is to be emphasised and welcomed. This is a commitment of two countries to implement Astana Ministerial Declaration [4], which states that AoA **clearly demonstrates linkages and gaps between the challenges that exist and the means to evaluate and address them**. It confirms willingness of two countries to keep their environment under review and assessed. Moreover, results of this AoA show gaps to be effectively addressed through the cooperation and efforts toward development of the Shared Environmental Information System (SEIS) as it is also stated in the Astana Ministerial Declaration.

Post Astana progress in implementing EE-AoA recommendations

In the Central Asian component[5] of the EE-AoA the set of country specific recommendations was developed and approved by all Central Asian countries. There were numerous recommendations for Kazakhstan and Kyrgyzstan as well.

Since EE-AoA was dedicated to two major topics: - **the greening economy/resource efficiency and water and water related ecosystems**, there were specific recommendations related to these topics.

Both countries did not do much practically in introduction of specific country reports on the state of water resources and greening the economy yet. There is an intention in both countries to introduce the set of green economy indicators and during the national consultations, discussing the outcomes of this AoA, the Agency of Statistics of Kazakhstan and the National Statistics

[1] The EE-AoA Guide at http://aoa.ew.eea.europa.eu/
[2] http://aoa.ew.eea.europa.eu/
[3] http://www.eea.europa.eu/publications/europes-environment-aoa
[4] http://www.unece.org/fileadmin/DAM/env/documents/2011/ece/ece.astana.conf.2011.2.add.1.e.pdf
[5] http://www.eea.europa.eu/themes/regions/pan-european/sub-regional-assessment-of-assessment-reports, Central Asia

Committee of Kyrgyzstan both stated the need in assistance to develop the national sets of green economy indicators.

There is certain post-Astana progress with environmental statistics in Kazakhstan through annual statistical publications " Environmental Protection and Sustainable Development" in use of the UNECE set of environmental indicators for EECCA countries. While, there is no much progress with environmental statistics in Kyrgyzstan yet.

It was recommended to Kazakhstan in the EE-AoA to improve the state of environment reporting. Kazakhstan has produced the last annual report in 2011 and since then, country is still in the process to introduce the new state of environment reporting.

Kyrgyzstan was recommended to revive regular publication of the state of environment reports and to consider its national funding. Kyrgyzstan in 2012 has produced a new state of environment report in use of UNECE Guidelines on indicator based environmental reporting[6] and through the relevant Governmental Resolution has ensured the national funding for regular publication of them.

Both countries were recommended to explore opportunities for cooperation with European Environmental Agency and other relevant institutions to establish SEIS. There is a new EU project in Central Asia on Forest and Biodiversity Governance including Environmental Monitoring (FLERMONECA), which gives an opportunity for Kazakhstan and Kyrgyzstan to benefit from the EEA guided cooperation and activities on SEIS in coming two years.

EE-AoA is specifically mentioned the use of the official development aid (ODA) for environmental reporting by Central Asian countries. Kazakhstan is less ODA dependent country in Central Asia and it continues and even expanding nationally funded environmental reporting. Meanwhile, Kyrgyzstan is still very much dependent of ODA funding for environmental reporting, which influences its regularity and ownership over the reporting processes and their products.

SEIS related country situations

Present AoA reviews country practices of environmental data gathering and aggregation, national statistics, set of indicators and their use in reporting to Multilateral Environmental Agreements (MEA) in assessed thematic areas and in the national state of environment reports (NSoER).

Kazakhstan

There is a gradual progress in organising and supply of data and information for NSoER and reports to MEAs through improvement of the environmental monitoring and relevant data reporting as well as through improvement of the national environmental statistics.

Regular national statistical publications on environment of post Astana period are the growing and improving sources of data for assessments in considered thematic areas. This also goes to regular publications of the environmental monitoring data in Kazakhstan.

6 http://www.unece.org/fileadmin/DAM/env/europe/monitoring/Publications/Indicators_Assessment/documents/Publication.Indicators___Reporting._ECE-CEP-140_Eng_final.pdf

There is a growing capacity to ensure consistency of environmental data and information through accumulating data and reports on servers of MoEP and development of the interagency environmental data exchange between MoEP and the Agency of Statistics of Kazakhstan.

However, there are serious needs for substantial improvement of data quality and compatibility, use of indicators, further interagency collaboration for data and information exchange, their joint storage and use.

SEIS related networking and cooperation are capable to address most of above mentioned needs. Kazakhstan could explore collaboration opportunities through twining projects with EU institutions and national institutions of EU and EEA member states. Kazakhstan is committed to benefit from EU FLERMONECA project to improve environmental data gathering and storage, use of indicators and NSoER.

Further active participation in the activity of UNECE WGEMA and UNECE Joint Task Force on Environmental Indicators (UNECE JTFEI) is also important in SEIS relevant improvement of the environmental statistics and reporting, use of indicators in them.

Kyrgyzstan

There are two principal processes of data and information collection for NSoER and reports to MEAs in Kyrgyzstan. These are: (i) regular process of data reporting to the National Statistic Committee (NSC) with further use of the national statistics in respective reporting and (ii) data from regular monitoring by the Agency of Hydrometeorology (KyrgyzHydromet), data on water, and land use from responsible governmental agencies.

The national environmental statistics are not compatible with requirements of most of MEA reports and NsoER and requires of considerable improvement. Environmental monitoring network and observations are rare very much and covers only several parts of the country and also does not provide sufficient data for MEA reports and NSoER. Existing environmental data and information is not sufficient for production of environmental indicators.

Organizing the data and information for reports to MEA and NSoER in most of cases is project formatted within respective ODA funded projects, which weakens consistency of data and information and ownership of responsible national institutions both over collected data and information and over final products.

Kyrgyzstan has comparably weak capacities, not only for environmental data and information gathering, but also for their storage, update and continues use from the pervious to the next reports. There are no centralised servers and web-portals for storage of data and reports and very often, web-portals of MEA Secretariats are only resources, where reports of Kyrgyzstan can be accessed. Existing servers and web-resources of national agencies and institutions have rather limited capacities and often are not compatible to each other.

Kyrgyzstan is needed SEIS related international networking and cooperation very much, not only for substantial improvement of data and information, analytical capacities and production of indicators, but also for development of SEIS oriented institutional settings and infrastructure. Processes and cooperation platforms mentioned with Kazakhstan are relevant for Kyrgyzstan as well.

Relevance

Use of UNECE set of environmental indicators for EECCA countries was one of the main subjects toward analysis of assessed environmental reports. Both countries declare the use of the UNECE set of indicators in their NSoERs and Kazakhstan also produces the regular national environmental statistic publications in use of them.

With much focus on assessments using above indicators it is to be emphasized that both countries have the room for considerable improvement in production of indicators. Problems start from availability and quality of data for indicators and then go to the ability to produce some of them and last, to the applicability of them, for instance, on marine environment.

Comparison of assessments in each thematic area with subtopics used by EEA shows much difference in subtopics and subjects used for assessments in Kazakhstan and Kyrgyzstan. For instance, both countries do not consider emission of air pollutants and green house gases per relevant monitoring, which was proposed by EEA. It shows, there is still difference in scoping environmental assessments in EEA countries and EECCA countries such as Kazakhstan and Kyrgyzstan, in spite of joint efforts and common interests within the Pan-European platform and membership at the same MEAs.

Both countries still have also room for improvement of their environmental assessments in observance of Drivers-Pressure-State-Impact-Response (DPSIR) framework, specifically on "drivers"- economy, infrastructure, households causing "pressure" on environment and on "response" measures to manage up environmental improvements.

The way forward

The set of recommendations has been developed in consultations with national focal points, involved experts and other relevant stakeholders, while discussions over major findings of this AoA took place in each country.

Commitments and interests of two countries to improve their reporting to MEAs and NSoERS along with improvement of the whole practices of environmental data gathering, storage, aggregation, national statistics, and production of indicators for reporting purposes are the way forward for them and their contributions for future Environment for Europe.

Both countries found interesting to continue exercising **assessment of assessments** in order to review countries' reporting processes in various thematic areas at the national level and reliable tool of comparing these processes between countries and their interfacing with agreed Pan-European reporting commitments, guidelines and recommendations.

In a view of weak interagency collaboration, which was found as one of the main causes of ineffective environmental data and information exchange for reporting purposes, both countries are committed to establish national interagency working groups under the umbrella of SEIS and welcome substantial support of these working groups by EEA, other EU institutions, by UNECE WGEMA and JTFEI.

Kazakhstan

Country is committed to establish better institutionalised regular process of the national state of environment reporting with much improved final product and welcomes relevant institutions in the Pan-European region to share their experience and best practices in development of NSoERs.

Country is committed to further improve national environmental statistics, which is built in use of the UNECE set of environmental indicators for EECCA countries and invites relevant institutions in the Pan-European region to assist methodically in further their improvement as well as invites relevant international institutions to assist methodically in development of the set of green economy indicators.

Country is interested in establishing of centralised SEIS compatible environmental data and information facility - the National Fund of the Environmental Information (NFEI) under the Information and Analytical Centre of MoEP and seeks for cooperation of relevant EU and Pan-European institutions, including on twinning base.

Kyrgyzstan

Environmental data and information consistency and availability for reports to MEAs and NSoER are challenging issues for the country. Considering significant share of ODA for development of reports to MEAs and other environmental assessments, Kyrgyzstan welcomes ODA contributions for improved and consistent environmental data and information supply for reporting to MEAs and future NSoERs, including establishment of SEIS compatible IT and data bases.

Capacity building and technical assistance toward improved national environmental statistics, production of environmental indicators and green economy statistics and indicators are welcomed and recently established Interagency Working Group on SEIS under the coordination of SAEPF and the Special Interagency Working Group on Environmental Statistics under the National Statistic Committee are committed very much to build bridges for needed cooperation.

Kyrgyzstan welcomes technical assistance in improvement of the environmental monitoring in the country and considering factually reduced environmental monitoring network, invites international expertise to build capacities for environmental monitoring through modelling.

КРАТКОЕ РЕЗЮМЕ

Настоящая Оценка Оценок по воздуху, биоразнообразию, изменению климата и отходам в Казахстане и Кыргызстане была подготовлена Региональным Экологическим Центром Центральной Азии (РЭЦЦА). Доклад подготовлен под эгидой Рабочей Группы по Мониторингу и Оценке Окружающей Среды (РГЭМиО ЕЭК) Европейской Экономической Комиссии ООН. Правительство Швейцарии предоставило финансирование РЭЦЦА для подготовки данного отчета.

Настоящая Оценка Оценок оценивает состояние дел в области экологических данных, статистики и отчетности в Казахстане и Кыргызстане в вышеуказанных тематических направлениях. Также, доклад оценивает использование набора экологических показателей ЕЭК для стран Восточной Европы, Кавказа и Центральной Азии (ВЕКЦА) и их приемлемость в рамках и подтемах, используемых для оценки вышеуказанных тематических направлений в странах-членах Европейского Агентства по Окружающей Среде (ЕАОС).

Доклад подготовлен при консультациях с Европейским Агентством по Окружающей Среде (ЕАОС) и в соответствии с методологией «Окружающая Среда Европы: Оценка Оценок»[7] вместе с веб-инструментами, разработанными ЕАОС для Оценки Оценок[8].

Как Казахстан, так и Кыргызстан проявили большой интерес к методологии Оценки Оценок и подтвердили свою готовность провести оценку оценок, с помощью которой возможно выявить взаимосвязи, пробелы и трудности которые существуют, и средства с помощью которых возможно продемонстрировать их анализ и решение данных проблем.

Прогресс после Астаны в продвижении мониторинга и оценки окружающей среды

Казахстан продолжил и расширил работу над отчетами по окружающей среде, которые финансируются на национальном уровне в период после Астаны (7-ой Конференции Министров Окружающей Среды). Прогресс, достигнутый в стране, включает сферу экологической статистики: ежегодная публикация «Охрана окружающей среды и устойчивое развитие Казахстана» использует набор экологических показателей ЕЭК для стран ВЕКЦА.

Кыргызстан подготовил национальный доклад о состоянии окружающей среды, применяя руководство ЕЭК по экологической отчетности на основе индикаторов,[9] в 2012 году и принял Постановление Правительства о выделении финансирования из национального бюджета на публикацию данного отчета на регулярной основе.

Кроме того, в обеих странах запущен новый проект Европейского Союза «Управление лесами и биоразнообразием, включая экологический мониторинг» (FLERMONECA), который дает возможность получить консультации Европейского Агентства по Окружающей Среде (ЕАОС) относительно Совместной Системы Экологической Информации (SEIS) в ближайшие два года.

[7] Руководство EE-AoA Guide at http://aoa.ew.eea.europa.eu/
[8] http://www.eea.europa.eu/publications/europes-environment-aoa
[9] http://www.unece.org/fileadmin/DAM/env/europe/monitoring/Publications/Indicators_Assessment/documents/Publication.Indicators___Reporting._ECE-CEP-140_Eng_final.pdf

Ситуация в странах в отношении Совместной системы экологической информации (SEIS)

Настоящая Оценка Оценок рассматривает практики, установленные в Казахстане и Кыргызстане, для сбора и обобщения экологических данных, а также для разработки экологических показателей. Более того, оценивается использование экологических показателей в отчетности по многосторонним природоохранным соглашениям (МПС) и в подготовке национальных докладов о состоянии окружающей среды с учетом четырех тематических направлений.

Казахстан

В период после Астане (7-й Конференции Министров ОС), наблюдается дальнейшее улучшение экологического мониторинга в Казахстане по четырем тематическим направлениям. Мониторинг предоставляет важные данные и информацию, необходимые для подготовки национальных докладов о состоянии окружающей среды и отчетов по МПС.

Кроме того, растет потенциал для обеспечения последовательности экологических данных посредством развития системы межведомственного обмена экологическими данными между Министерством Охраны Окружающей Среды и Национальным Статистическим Агентством Казахстана. Данные хранятся в электронных базах.

В то же самое время, необходимо и дальше улучшать качество и совместимость данных, а также использование показателей. Надо усиливать межведомственное сотрудничество для обмена, хранения и анализа данных.

В целях решения этих вопросов, Казахстан должен изучить совместные работы в рамках проектов учреждений и национальных институтов ЕС и стран-членов ЕАОС. Казахстан собирается получить пользу от проекта ЕС FLERMONECA, чтобы улучшить сбор и хранение экологических данных, а также использование показателей и национальных докладов о состоянии окружающей среды. Проект FLERMONECA дает хорошие возможности для Казахстана в решении своих потребностей для дальнейшего совершенствования экологического мониторинга и оценки, и создания системы экологического мониторинга, поддерживаемого Совместной Системой Экологической Информации.

Дальнейшее активное участие в мероприятиях Рабочей Группы по экологическому мониторингу и оценке (РГЭМиО) ЕЭК и Совместной межсекторальной целевой группы по экологическим показателям (СМГЭИ) предлагает возможности для решения вопросов в стране по улучшению экологической статистики и отчетности, а также использования индикаторов.

Кыргызстан

Кыргызстан продолжает собирать данные с помощью следующих двух основных процессов: (1) через передачу данных Национальному Статистическому Комитету (НСК) и (2) посредством регулярного мониторинга Агентства по Гидрометеорологии (КыргызГидромет).

Однако данные, собранные таким образом, недостаточны, так как, например, сеть экологического мониторинга охватывает только ограниченную территорию страны. Поэтому, данные не отвечают требованиям отчетности перед МПС.

Следовательно, отчетность перед МПС и подготовка Национальных Докладов о состоянии окружающей среды часто поддерживается и направляется проектами при финансировании в рамках помощи, выделенной на развитие. Более того, из-за слабого потенциала хранения данных, страна в недостаточной мере поддерживает данные, собранные в процессе реализации проектов. Поэтому, часто веб-порталы МПС являются единственными источниками, где имеются экологические данные и отчеты о Кыргызстане.

Кыргызстан испытывает большую потребность в формировании институциональной структуры и инфраструктуры, которые помогли бы стране создать систему экологической информации, поддерживаемой совместной системой экологической информации (SEIS). Необходимо для этих целей использовать потенциал проектов по SEIS, включая проект Европейского Союза FLERMONECA. Страна также должна получить пользу от ее активного участия в мероприятиях РГЭМиО ЕЭК и СМГЭИ.

Использование экологических индикаторов ЕЭК ООН

Казахстан и Кыргызстан объявили о том, что используют набор показателей ЕЭК в своих национальных докладах о состоянии окружающей среды. Казахстан также сообщил об использовании показателей в регулярных национальных публикациях, посвященных экологической статистике. Однако, настоящая Оценка Оценок показывает, что применение экологических показателй ЕЭК ограничено, и в обеих странах еще есть место для существенного совершенствования работы над показателями.

Наличие данных и их качество являются одной из основных трудностей при разработке показателей. Также, необходимо укреплять потенциал государственных учреждений в этом направлении. Более того, текущая Оценка Оценок показывает, что имеется разница в масштабах экологических оценок в странах ЕАОС и странах ВЕКЦА, таких как Казахстан и Кыргызстан, несмотря на совместные усилия и общие интересы в рамках общей Европейской платформы.

Кроме того, в обеих странах есть место для улучшения своих соответствующих экологических оценок при соблюдении принципа *Движущие силы - давление - состояние - воздействие – реагирование* (ДС-Д-С-В-Р), особенно по движущим силам – в области экономики, инфраструктуры, домашних хозяйств, вызывающие «давление» на окружающую среду, и мерам «реагирования», чтобы добиться улучшений в окружающей среде.

Путь вперед

Дальнейшему развитию обеих стран должны будут содействовать улучшение сбора, хранения, обобщения экологических данных, национальной статистики и подготовка показателей для отчетности.

При выборе такого пути, обе страны должны воспользоваться набором рекомендаций настоящей Оценки Оценок, разработанной при помощи консультаций с национальными ответственными должностными лицами, и с вовлечением экспертов и других соответствующих заинтересованных сторон.

Обе страны проявляют интерес к методологии Оценки Оценок, чтобы оценить процессы отчетности соответствующих стран в различных тематических областях на национальном уровне и сравнить эти процессы между странами.

Казахстан и Кыргызстан взяли на себя обязательство создать межведомственные рабочие группы под эгидой SEIS в целях улучшения обмена данными и информацией. Они приветствуют значительную поддержку этих рабочих групп со стороны ЕАОС, других институтов ЕС, РГЭМиО ЕЭК и СМГЭИ.

Казахстан

Казахстан берет на себя обязательство создать лучшие и более регулярные процессы для подготовки национального доклада о состоянии окружающей среды высокого качества. Страна приветствует соответствующую помощь от институтов во всем европейском регионе, готовых делиться своим опытом и наилучшими практиками при разработке национальных докладов.

Более того, Казахстан привержен дальнейшему улучшению национальной экологической статистики, и приветствует методологическую помощь от организаций панъевропейского региона в этом отношении.

Страна заинтересована в создании централизованного органа единой системы экологической информации – Государственного Фонд Экологической Информации (ГФЭИ) при Информационно-Аналитическом Центре Министерства Охраны Окружающей Среды. Страна стремится к сотрудничеству с соответствующими институтами Европейского Союза и всей Европы для этой цели, включая совместные организации и институты.

Кыргызстан

Кыргызстан взял на себя обязательство улучшить экологический мониторинг и оценку. Отсутствие внутренних финансовых средств для этих целей является главным препятствием для продвижения этих вопросов. Поэтому, страна приветствует помощь, как часть помощи в сфере развития, для улучшения своей системы экологического мониторинга и оценки, включая создание механизма хранения данных и информации.

Страна сформировала межведомственную рабочую группу по SEIS при Государственном Агентстве по Окружающей Среде и Лесному Хозяйству и специальную межведомственную рабочую группу по экологической статистике при Национальном Статистическом Комитете с целью создания необходимых структур для получения экологической статистики. Обучение и повышение потенциала национальных экспертов рабочей группы, особенно в сфере сбора и оценки данных, а также включение данных при разработке политики в области окружающей среды приветствуется в стране.

1. INTRODUCTION

The Europe's Environment: - An Assessment of Assessments (EE-AoA)[10], was commissioned by stakeholders of the Pan-European "Environment for Europe" (EfE) process in connection with EfE Seventh Ministerial Conference in Astana (Astana Conference), the Republic of Kazakhstan held on September 21-23, 2011.

The EE-AoA was developed by the European Environmental Agency (EEA) in cooperation with United Nations Economic Commission for Europe (UNECE), Regional Environmental Centres of Caucasus, Central Asia, Moldova and Russian Federation after consultations with wide range of stakeholders.

The Central Asian component[11] of the EE-AoA is its integral part. It was developed by Central Asian Regional Environmental Centre (CAREC) under the substantive and technical guidance of the EEA, funding support of the Italian and, Swiss Governments and the UNECE. It was also a fruitful collaboration exercise with appointed Focal Points and nominated national experts from Central Asian countries.

The EE-AoA covering two major topics - the Inland Water Resources and the Greening the Economy - was highly appreciated at the Astana Conference and recognized by stakeholders as a good basis for outlining the state of play and the needs in the countries with regard to environmental information, indicators and assessments[12].

The UNECE Working Group on Environmental Monitoring and Assessment (UNECE WGEMA) at its Thirteen Session, held on October 30 – November 1, 2012 invited the REC Moldova and CAREC to further develop under EEA guidance the Assessment of Assessments methodology to new areas such as (AoA) Biodiversity, Air, Climate Change and Wastes for four selected countries of Eastern Europe, Caucasus and Central Asia (EECCA) and to report the outcomes of this work at Fourteenth Session of the UNECE WGEMA in November, 2013.

The objective of a new AoA on Biodiversity, Air, Climate Change and Wastes is to assess the state of play in the environmental reporting, indicators and statistics in the above thematic areas in selected EECCA countries. In result of consultations with Central Asian countries, CAREC received positive feedback from Kazakhstan and Kyrgyzstan to prepare such AoA.

CAREC and REC Moldova implemented the activity by using the Assessment of Assessments' Methodology[13] and related EEA tools developed for this purpse (EE-AoA web-portal[14]).

EEA provided an extended facility in the EEA EE-AoA Virtual Library[15] to upload new assessments and provided the breakdown of sub-topics for each of four thematic areas to interface and test compatibility of assessments to EEA priorities in respective thematic areas.

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[10] http://www.eea.europa.eu/themes/regions/pan-european/europes-environment-an-assessment/europes-environment-2014-an-assessment

[11] http://www.eea.europa.eu/themes/regions/pan-european/sub-regional-assessment-of-assessment-reports, http://www.carecnet.org/en/international-events/europe%e2%80%99s-environment-an-assessment-of-assessments-ee-aoa/

[12] http://www.unece.org/env/efe/Astana/documents.html

[13] The EE-AoA Guide at http://aoa.ew.eea.europa.eu/

[14] http://aoa.ew.eea.europa.eu/

The Ministry of Environmental Protection of Kazakhstan (MoEP) and the State Agency of Environmental Protection and Forestry of Kyrgyzstan (SAEPF, have appointed Focal Points from their senior staff) for coordination of relevant AoA activities. Based on consultations with Focal Points, CAREC employed four national experts in each country to implement the activity.

National experts have identified assessments, covering the National State of Environment Reports (NSoERs), reports to Multilateral Environmental Agreements (MEA's), statistical compendiums, relevant thematic publications for each area, and uploaded them to the Extended Virtual Library at the EEA AoA web-portal. To upload assessments to the Virtual Library, it was agreed to identify sources starting from 2007 and to avoid repetitious by uploading again sources already available in the Virtual Library. There were twenty sources identified and uploaded for Kazakhstan (Annex 1, Table 1) and twenty eight for Kyrgyzstan (Annex 1, Table 2).

National experts also prepared Country Fiches (Annex 2) for respective thematic areas and approved them with appointed Focal Points. The uploading of approved Country Fiches to the EEA AoA Web-portal is pending.

Since the specific EEA on-line Review Templates were not accessible, for the purposes of review and analysis of assessments, in consultations with Focal Points and national experts, three major assessments per thematic area and per country were identified. These assessments were analysed against the use of UNECE core set of environmental indicators for EECCA countries, compatibility with the sub-topics proposed by EEA and compliance with the DPSIR framework.

The current AoA report consists of Introduction and three Chapters. In the second and third chapters an overview of the national systems on data and information management, on reporting and assessments, review and analysis of selected assessments in each thematic area in Kazakhstan and Kyrgyzstan are presented.

The forth chapter makes a comparative analysis of the outcomes of the assessment between the two countries, provides relevant conclusions and recommendations discussed with involved national experts and approved by the appointed National Focal Points.

[15] http://aoa.ew.eea.europa.eu/tools/virtual_library/virtual-library-extended

2. KAZAKHSTAN

2.1. SETTING THE SCENE

2.1.1. Country situation with assessments: post-Astana progress and trends

Kazakhstan is Party to twenty six MEA's and majority of environmental assessments are developed for fulfilling country's obligations under them (Annex 3, Table 1). There are obligations to report to the specific MEAs on biodiversity, air, climate change and wastes. There is an obligation under the Aarhus Convention to develop NSoER's and ensure public access to them. NSoERs cover all thematic areas that are under the review in this report.

The group of involved national experts from Kazakhstan uploaded 20 new sources to the EEA Virtual Library:

- One NSoER
- Seven reports to MEAs (4-Biodiversity, 1- Air, 1-Climate Change, 1-Wastes)
- Five Statistical Compendiums
- One Informational Bulletin on the State of Environment in Kazakhstan
- Three thematic publications on Climate Change
- One Strategic Plan of the MoEP 2011-2015
- One National Plan on Green Development "Zhasyl Damu", and
- One National Plan on Waste Management.

NSoER-2010 and obligatory reports to MEAs, several other thematic reports and relevant statistical compendiums were uploaded to the Virtual Library and were proposed for assessment within current AoA.

As for practical post Astana EE-AoA related achievements of Kazakhstan, the publication of NSoER-2010 in 2011 and of statistical compendiums: Environmental Protection and Sustainable Development of Kazakhstan 2007-2010, 2007-2011 in 2011 and 2012 respectively and the "Agriculture, Forestry and Fishery in Kazakhstan 2007-2011" (2012), the National Inventory Report (NIR) on GHG to UNFCCC (2013) can be named.

NSoER-2010 refers to the use of the UNECE Guidance on "Environmental Indicators and Indicator-based Assessment Reports for EECCA countries (2007)[16] However, it should be mentioned that the NSoER-2010 as well as previous NSoERs 2006-2009 only observe recommended indicators' set, but not exactly follow the UNECE Guidance on Indicator-based Assessment Reports for EECCA countries.

NSoER-2010 is featured by prevalence of the texts, it is also overloaded by not aggregated and not indicator type of data.

16 http://www.unece.org/fileadmin/DAM/env/europe/monitoring/Publications/Indicators_Assessment/documents/Publication.Indicators___Reporting._ECE-CEP-140_Eng_final.pdf

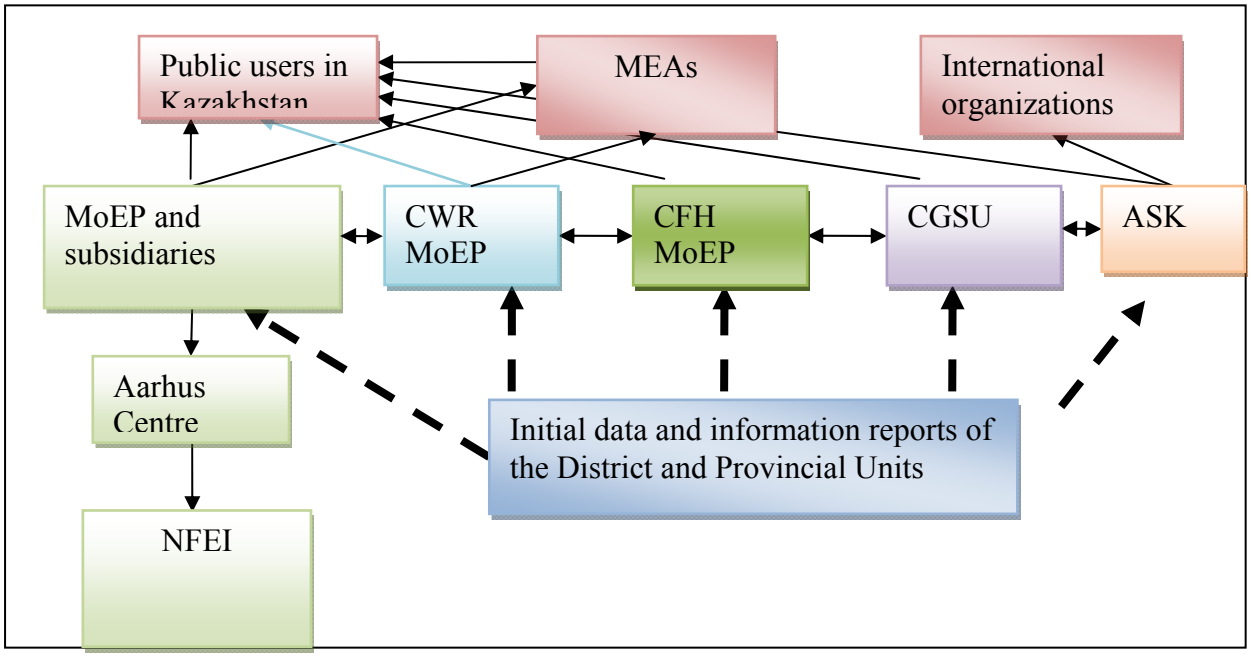
The Statistical Compendium "Environmental Protection and Sustainable Development of Kazakhstan 2007-2010"[17] (EPSD 2007-2010), which was published in the fall of 2011, right after the Astana EfE Ministerial Conference, can be added to the list of post-Astana achievements. It contains 26 environmental indicators from 36 recommended by UNECE. In 2012 the Agency of Statistics of Kazakhstan (ASK) has published the updated EPSD 2007-2011[18], reflecting 32 of 36 UNECE environmental indicators for EECCA countries.

2.1.2. Current state of the environmental information and data flow

The system of the environmental data and information gathering, flow and management in Kazakhstan is shown in Figure 2.1. The major player is MoEP with its Committees: Environmental Regulation and Control (CERC), Water Resources (CWR), Forestry and Hunting (CFH), Fishery (FC) and subsidiary entities: - the National Hydrometeorological Service (KazHydromet), Information and Analytical Centre on Environmental Protection (IAC EP) and newly established Joint Stock Company - "Zhasyl Damu" (JSC Zhasyl Damu), which is a successor of the Kazakh Research Institute of Environment and Climate (KazRIEC). KazRIEC was responsible for development of NSoERs and several other reports to MEAs.

Other responsible governmental agencies are the Agency of Statistics (ASK), the Committee of Geology and Subsoil Use (CGSU) of the Ministry of Industries and New Technologies (MINT), those particularly report on industrial and mining wastes.

Figure 2.1: Principal scheme of the environmental data and information linkage and flow in Kazakhstan



[17] http://www.stat.kz/publishing/20111/OhranaEnd.pdf, pg. 3
[18] http://www.stat.kz/publishing/20121/%D0%98%D0%BD%D0%B5%D1%80%D0%B0%D0%BA%D1%82%D0%B8%D0%B2%20%D0%9E%D0%9E%D0%A1%2011.pdf

After collecting the basic data, its exchange and sharing among responsible governmental agencies such as MoEP, MINT, ASK are usually done on the basis of the official written requests. However, in the past two years, Kazakhstan started to practice more regular sharing and use of needed data and information among several agencies with compatible IT facilities.

There is a Joint Order of MoEP and ASK dated by August 15, 2012 "*On the information exchange between ASK and MoEP"*, which provides regular flow of the aggregated data and information from MoEP to ASK on the agreed list of indicators. Using these data and information ASK, produces annual update of the on-line accessible environmental statistics and publishes statistical compendiums "Environmental protection and sustainable development".

The Figure 2.1 shows, in its left bottom corner, the section with the National Fund of the Environmental Information (NFEI). It was established under the IAC EP in 2005 for collecting environmental data and information, thus needed for reporting to MEAs. However, the data and information for NFEI are provided to relevant data bases post factum to developed MEA reports.

Table 2.1: Key web-resources on environmental information and data in Kazakhstan

Agency and its web-site	Key environmental information and data contained
MoEP http://eco.gov.kz/	• NSoERs 2006-2010, • Reports to MEAs for the period 2008-2013, • Information Bulletins on the State of Environment • Statistical reports by the Committee of Ecological Regulation and Control (CERC), • Statistical reports by the Committee for Water Resources (CWR), • Statistical Reports on hazardous wastes, • Reports on environmental pollution, • Reports on radiation monitoring of rural settlements, • Reports on the environmental and demographic survey of rural settlements, • National Atlas of the Republic of Kazakhstan (2006)
ASK http://www.eng.stat.kz/digital/Environmental%20protection/Pages/default.aspx	• Running expenses on environment protection • Captured and neutralization of contaminants • Utilized pollutants • The number of stationary sources of pollution • Emissions of air pollutants emitted from stationary sources • Emissions of air pollutants emitted from stationary sources (per capita) • Emissions solid pollutants • Emissions liquid and gasiform pollutant substances • Emissions the most widespread pollutants, divergent from stationary source of free air pollution • Expenses for environment protection
Aarhus Centre under IAC EP - http://aarhus.kz	• NSoERs • Reports to UNECE water Convention • Reports on implementation of the Aarhus Convention • Guidance and publications on the access to the environmental information • Thematic publications on environment

In the EE-AoA-CA it was mentioned that Kazakhstan is the most advanced among Central Asian countries in providing the internet access to the environmental information on water and the greening the economy, including to the NSoERs, environmental and water statistics, reports to the MEAs either through own web-resources or through web-sites of relevant Conventions[19]. There are not much specific developments toward water. However, several web-resources were developed on green economy (http://g-global-expo.org/gbp/index.html, http://en.greenkaz.kz/ http://gbpp.org/), thus mostly focused on the process and projects initiated by Kazakhstan toward promotion of the green economy.

Web-sites of MoEP, ASK and Aarhus Centre give free access to the official environmental information and data, including for the considered thematic areas (Table 2.1). All assessments considered in this AoA are accessible through these web-sites too.

The column "Key environmental information and data contained" in the Table 2.1 refers to the on-line accessible written and statistical reports, information and data on the state of environment and its management. The strategic documents, national programmes, relevant governmental resolutions and legal acts are also available, easily and freely accessible through these web-sites. These web-sites are updated regularly on monthly and quarterly base. Still the problem with these web-resources is that the most of the information is in Russian and is not always available in English.

2.1.3. Brief overview of the institutional settings and funding of the environmental reporting

Responsibility for the preparation of the NSoER is vested with MoEP. From 1991 to 2003, the MoEP developed and published NSoERs by its own means. Since 2004, NSoERs were developed by KazRIEC, which was a subsidiary of the MoEP. NSoERs' development was funded and coordinated by the MoEP.

From 2006 to 2011, KazRIEC produced five annual NSoERs under the above mentioned programme of MoEP. Since then, due to the reforms within the MoEP, including changes in the procurement procedures, the decision on which institution should take over the development of NSoERs and provide funding for it is still pending.

KazRIEC, which was in April 9, 2013 reorganized to the JSC "Zhasyl Damu" has a direct mandate of the Working Body from the Government of Kazakhstan and the MoEP to develop the Inventory of Greenhouse Gas Emissions and to create, maintain, update and publish the State Cadastre of Greenhouse Gases as for the implementation of country obligations under the Kyoto Protocol, and to prepare the National Communications of the Republic of Kazakhstan to the UNFCCC. Reporting to the Kyoto Protocol is funded by the Government of Kazakhstan and the National Communications to UNFCCC is funded by UNDP/GEF.

In 2009, IAC EP of the MoEP has prepared the 4th National Report to the Convention on Biodiversity and the UNDP/GEF is the source of co-funding of reports to UNCBD. Kazakhstan has submitted all four reports since ratification of the Convention on Biological Diversity. There is a co-funding provided by the MoEP for the reporting to UNCBD as well.

[19] Europe's Environment – Central Asia – An Assessment of Assessments, CAREC, 2011, Table 2.4, pg 23.

For all other reports to MEAs, Kazakhstan provides its own funding. Development of the reports is entrusted by the MoEP to national professional entities selected through tenders. Several other National Agencies and Institutions, which are not subsidiaries of the MoEP, also bear responsibility in reporting or providing data for reporting to the MEAs.

Responsibility for preparation of the Report under the Convention on the Protection of the World Cultural and Natural Heritage is shared among the Ministry of Education and Science (MES) and MoEP, while the latest report for 2010[20] was prepared by IAC EP.

The Ministry of Agriculture (MoA) and its Committee of Forestry and Hunting (CFH) were responsible for the preparation of reports under the following conventions:

- The Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Convention);
- The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention);
- The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES);

Within the structural reform of the MoEP, the CFH, by the Resolution of the Government of Kazakhstan as of March 26, 2013[21], was assigned to become a subsidiary to the MoEP. Due to this change the reporting to above Conventions either will stay within CFH or may be changed. The above Resolution only stipulates that the international obligations in the area of forestry and wild life protection are responsibility of CFH[22]. The Fisheries Committee (FC), which has the function to protect and preserve fish and other water species, was transfered from the Ministry of Agriculture to the MoEP

KazHydromet bears responsibility to collect data and publish monthly, quarterly and annual Information Bulletins on the State of Environment (2013)[23] and upload them to the web-site of the MoEP.

ASK produces various publications on the state of environment, covering all considered thematic areas, including obligatory statistics on air pollution directly reported to the UNECE Convention on Long-range Transboundary Air Pollution, "Key indicators on air pollution for 2004-2011"[24]. ASK has also published the Statistical Compendium "Environmental Protection and Sustainable Development of Kazakhstan 2007-2011" (2012)[25], which is the most comprehensive statistical source on all considered thematic areas. Another valuable Statistical Compendium covering Biodiversity is the "Agriculture, Forestry and Fishing in Kazakhstan 2007-2011" (2012)[26].

[20] http://aarhus.kz/index.php?option=com_content&task=view&id=733
[21] http://www.eco.gov.kz/new2012/ministry/komitet/kloh/
[22] http://www.eco.gov.kz/new2012/ministry/komitet/kloh/, Paragraph 18, Item 7; Paragraph 20, Item 12.
[23] http://www.eco.gov.kz/new2012/activity-of-state-authority/information-about-the-environmental-situation-in-the-regions-of-kazakhstan/ecobul/
[24] http://www.stat.kz/digital/ohrana/Pages/default.aspx
[25] http://www.stat.kz/publishing/20121/%D0%98%D0%BD%D0%B5%D1%80%D0%B0%D0%BA%D1%82%D0%B8%D0%B2%20%D0%9E%D0%9E%D0%A1%2011.pdf
[26] http://www.stat.kz/publishing/20121/%D0%A1%D0%B5%D0%BB%D1%8C%D1%85%D0%BE%D0%B7_inter.pdf

UNDP Kazakhstan plays certain role in assessing the state of environment in the mentioned thematic areas being the implementing agency for GEF. Some thematic publications were produced within UNDP/GEF projects, including those on climate change mitigation and adaptation.

UNECE also plays an important role in the assessment process, specifically in the methodological guidance of the reporting, including NSoER and the reporting to UNECE Conventions. UNECE actively involves the MoEP and ASK to the activities of the UNECE WGEMA and JTFEI. Experts from these agencies are involved in the discussion about and the approval of reporting guidance, the set of indicators and recommendations on environmental statistics. UNECE, based on the request by the Government of Kazakhstan, produced the Second EPR in 2008.

CAREC, after completion of the EE-AoA in 2011, was awarded the EU grant to implement the environmental awareness raising (AWARE) project in Central Asia. This project includes component on SEIS related awareness raising. Several expert assessments on the state of the environmental reporting, indicators and statistics were made under this component for each of Central Asian countries and bellow sub-chapter on the state of the environmental information and data flow is the summary of the assessed situation in Kazakhstan. In addition to expert assessments, CAREC organized the national awareness raising seminar on SEIS in Astana.

2.2. REVIEW AND ANALYSIS OF ASSESSMENTS IN THEMATIC AREAS

2.2.1. Air

2.2.1.1. Overview of the reporting

MoEP is the governmental agency that organizes the air quality and pollution monitoring. MoEP monitors country's compliance with obligations under relevant MEAs on air as well. The CERC, KazHydormet and ASK are major suppliers of the air monitoring and pollution data in the country.

CERC with its provincial (oblast) branches is responsible for collecting reports from enterprises – emitters of air polluting substances. CERC runs an Inventory of Enterprises – emitters of the air polluting substances, including harmful and hazardous pollutants.

Enterprisers are responsible for installation of and running the compatible monitoring equipment and systems. Enterprises submit reports on emission of air polluting substances in form of the approved statistical forms twice a year and in case of emergencies - immediately to oblast branches of CERC. The data on emissions is regularly published on the web-site of MoEP[27].

Registered enterprises emitting air pollutants from the stationary sources include coal and lignite mining, oil and gas, mining of metal ores, other mining and metallurgic industries, petrochemical and chemical industries, agriculture, construction, energy supply, processing industries.

KazHydromet monitors air quality in the country, using the network of 78 stations. The installation of automated air quality monitoring stations started 3-4 years ago. The number of automated stations is growing. The data on air quality is monthly, quarterly and annually published in the Information Bulletins on the State of Environment (IBSE)[28], which are also accessible on-line.

The report to the Convention on Long-range Transboundary Air Pollution (2010)[29] was reported by MoEP pursuant to the obligations of Kazakhstan. Data on the amount of emissions of pollutants from 1995 to 2010 were collected in line with the Guidelines on provision of data on emissions in accordance with the Convention. ASK bears responsibility to develop statistical reports on the air pollution from the stationary sources as for implementation of obligations under the above Convention too and provides on-line access to relevant data[30].

The NSoER and the IBSE are the main assessments, covering air quality and air pollution. The Statistical Compendium "Environmental Protection and Sustainable Development 2007-2011" (EPSD 2007-2011) is another valuable source on air quality, accessible on-line and available in hard copies.

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[27] http://www.eco.gov.kz/new2012/ministry/statistical-information/statistical-reporting/ved-kom/

[28] http://www.eco.gov.kz/new2012/activity-of-state-authority/information-about-the-environmental-situation-in-the-regions-of-kazakhstan/ecobul/

[29] http://www.eco.gov.kz/new2012/wp-content/uploads/doklady/zagr.vozdux2010.htm

[30] http://www.eco.gov.kz/new2012/ministry/statistical-information/statistical-reporting/ved-kom/, pgs 110 -133

The IBSE regularly provides results of the environmental monitoring by KazHydormet. The Bulletins provide charts, maps on atmospheric air pollution, along with water and soil monitoring data and information and assessment of the air quality and pollution by major cities and selected regions. Since 2009 the Bulletin provides data obtained from automated stations and since 2010 includes maps of the air pollution, which also show location of automated stations. A separate information and data collected by air quality monitoring stations "AGIP Kazakhstan Caspian Operating" and "Atyrau Oil Processing Plant" is included in IBSE as well.

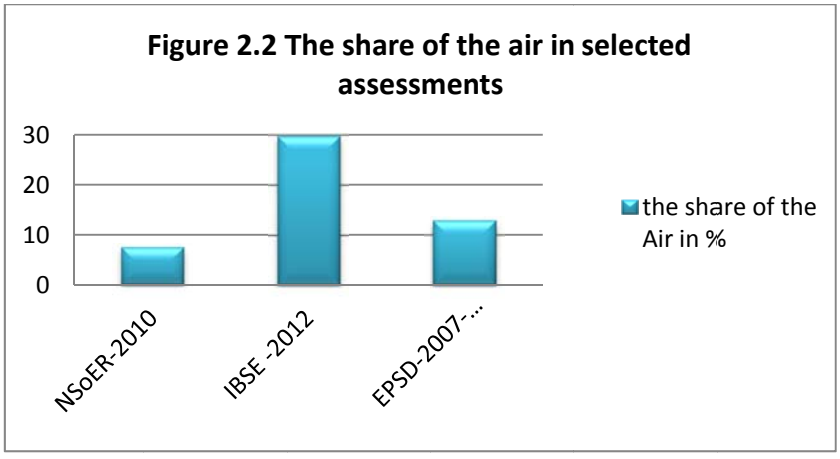
The NSoER-2010 provides some analytical information on the quality of atmospheric air in cities and emission of pollutants into the atmospheric air on the territory of Kazakhstan. For the purpose of NSoER, the data on air quality in settlements, emission of pollutants into the air and public health is collected from the respective agencies. The Chapters on air are prevailingly descriptive. They also provide findings and recommendations on the quality control of the atmospheric air, to which Kazakhstan should pay particular attention.

2.2.1.2. Review and analysis

For more detailed review of the assessments on air the NSoER -2010, annual IBSE-2012[31] and the EPSD- 2007-2011 were selected.

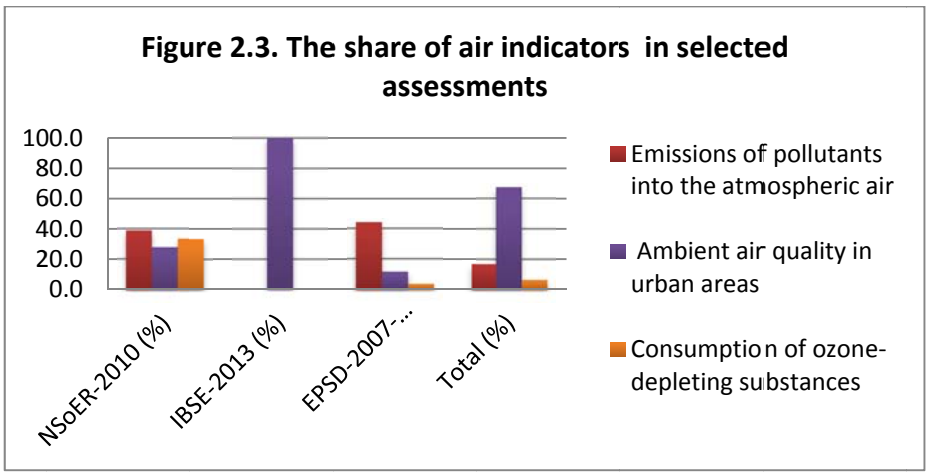
They are checked through for the use of UNECE indicators on air and also for relevance of their sub-topics and subjects in the assessments to the sub-topics proposed by EEA for the purpose of this AoA (Annex 4, Table 1.1).

Since NSoER-2010 and the IBSE-2012 provide descriptive information combined with charts, tables, graphs and figures. Their substance is to be compared to the UNECE indicators and the EEA sub-topics and subjects through the number of relevant pages. In EPSD-2007-2011, which is a statistical compendium, the number of relevant tables is counted. The overall share of the air in selected assessments is shown in bellow Figure 2.2.



There are three UNECE indicators on air: emission of pollutants into the atmospheric air, ambient air quality in urban areas, consumption of ozone depleting substances. All three assessments in combination provide the following share of proposed indicators on air (Figure 2.3).

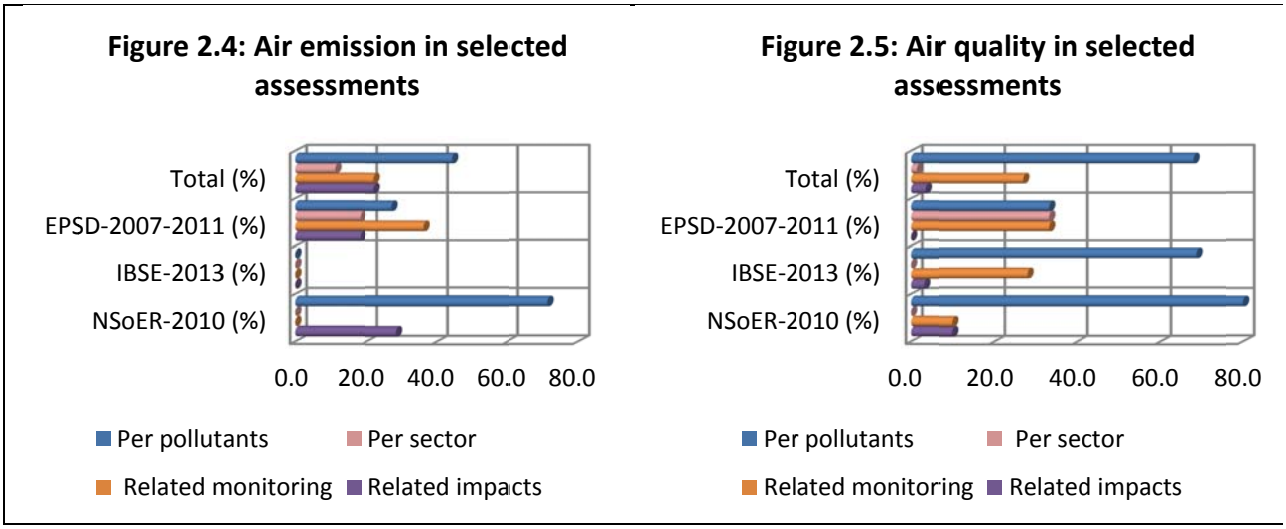
[31] http://www.eco.gov.kz/new2012/3119-9/, Annual 2012



If NSoER-2010 considers all UNECE indicators on air, IBSE-2012 makes entire focus on the air quality and then EPSD-2007-2011 gives a little more information on the emission of polluting substances comparing to other indicators. In overall picture (total) the ambient air quality is the most prevalent, because the data provided by KazHydormet from its air quality monitoring stations is available and easily accessible due to the established practice to publish regularly updated IBSE.

The comparison of subtopics and subjects recommended by the EEA with selected assessments (Figures 2.4 and 2.5) proves that there are very limited data and information on air pollution by sectors, by related monitoring and by impact.

The reason behind this is that the main objective of data gathering by CERC MoEP from enterprises, polluting the air is to charge the fee for air pollution. The system is not designed to collect data and information on impacts and response measures yet. Therefore, MoEP produces insufficient data and information for NSoERs on air pollution by sectors, on impact of air pollution, which can be seen in Figures 2.4 and 2.5.



In the EPSD-2007-2011 the ASK shows comparably even statistics on emissions of the air polluting substances, because it is covered by the statistical reporting of enterprises on the emissions.

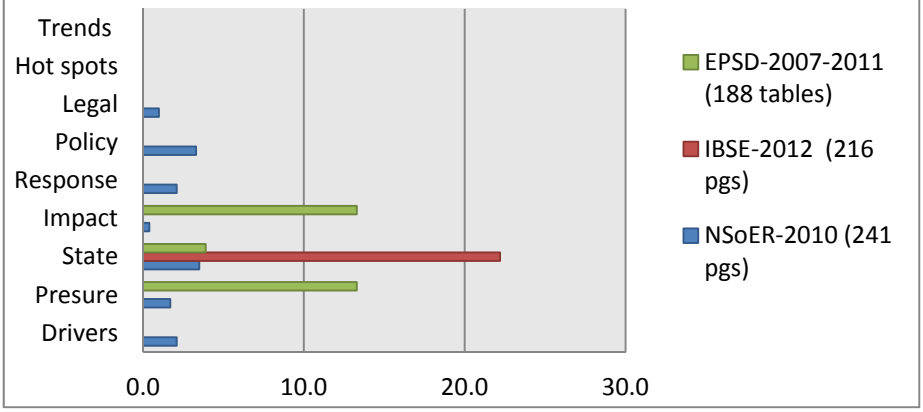
The Figure 2.4, in a view of the specificity of KazHydromet's data gathering on the air quality from its stationary points, shows mostly the data on air quality per pollutants. It also shows the

air quality by locations and these data used in EPSD 2007-2010 and NSoER-2010, where the "per pollutants" subject looks much better presented than "per sector" and the "related monitoring".

The DPSIR Framework complemented by policy, legal, hot spots and trends analyses was recommended and then applied in the EE-AoA[32]. National experts involved to the development of this AoA, were proposed to find out observance of the above DPSIR framework in selected assessments.

It was recommended to national experts to review each of three recommended assessments and find out all substantive items that could be considered relevant to the components of the DPSIR framework in each respective thematic area (Annex 5, Table 1.1.). The Figure 2.6 shows the DPSIR observance in three selected assessments on air.

Figure 2.6: DPSIR analysis of assessments on air (%)



Overall low percentage of pages one air in NSoER-2010 and EPSD-2007-2011 can be explained by the comprehensiveness of these assessments covering many other thematic areas of the environmental management. The IBSE-2012 as more specialised, but also not entirely air dedicated publication, presents only the "State" analyses, among the multitude of other DPSIR components.

2.2.2. Climate change

2.2.2.1. Overview of the reporting

The JSC "Zhasyl Damy" is the assigned Working Body of Kazakhstan (WBK) to run the Inventory of greenhouse gas (GHG) emissions and to submit the relevant National Inventory Reports to the UNFCCC Secretariat, while keeping responsibility for preparation and reporting the National Communications on climate change to UNFCCC[33].

According to the requirements of the UNFCCC and subsequent decisions of the Conference of Parties, Kazakhstan ensures regular GHG National Inventory Reports (NIR) on collection, processing, storage and analysis of data required for determination of the actual emissions and

[32] The EE-AoA Guide at http://aoa.ew.eea.europa.eu/
[33] http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/7383.php,

absorption of greenhouse gases. The data for the national inventory of GHG emissions is based on statistical reports of the ASK, as well as on the data provided by other state agencies and enterprises.

For the purpose of preparation of the NIR, MoEP sends the requests to other agencies and institutions holding baseline data required for assessing GHG emissions and absorption. These agencies and institutions provide the WBK with required data within one month after the receipt of relevant requests.

The main suppliers of the baseline data is the ASK. The Ministry of Oil and Gas (MOG) provides data on fuel consumption for purpose of the calculation of GHG emissions. MINT provides data on production of metals, crude iron and steel, chemicals, minerals. The Ministry of Agriculture (MA) provides data on livestock population and total fertilization. The Ministry of Transport and Communications (MTC) provides data on the number of vehicles and the Ministry of Health (MH)- on the amount of medical waste incinerated since 2006. The Agency for Land Resources Management of the Ministry of Regional Development (ALRM) provides data on the state and use of forests and agricultural land for various purposes, the Customs Committee supplies data on export and import of fuel, certain chemicals, calcium carbide, cement, and other. In addition, data is also requested from the local provincial authorities (Oblast Akimiats) on solid wastes and wastewaters.

Results of systematic climate observations by KazHydromet are part of the reporting on climate change. KazHydromet provides data on monthly and annual average main climatic characteristics – the atmospheric pressure at sea level, air temperature, maximum and minimum air temperatures, monthly and annual precipitation for certain periods of observation, including for the Global Climate Observation System from 14 Hydromet stations of the national hydro meteorological network in Kazakhstan. Monitoring of climate and climate change is based on this data. The National Data Base "KAZHYDROMET" containing main climatic features is accessed for the purposes of reporting on climate change, including the development of the National Communications.

The EPSE-2007-2011[34] provides statistics on climate change. It contains data on climatic characteristics received from KazHydromet (rainfall, the monthly average temperature with breakdown by cities for 2011), the data on greenhouse gas emissions annual/yearly breakdown, emissions of pollutants including soot and carbon oxide, the data on the volume of household solid waste, which are used in the calculation of methane emerging at landfills of solid waste, and the data on forest resources and forest-covered areas, which are used for the calculation of absorption of carbon dioxide by the forest vegetation, as well as data on the areas of forest fires, which is used for the calculation of GHG emissions in the "Forestry, land use and land use change" sector.

Assessments on climate change also use statistics by sector, which contain data on the industrial production ("Industry of Kazakhstan"), fuel and energy balance used in the calculation of GHG emissions in the sectors "Energy related activity", "Transport of Kazakhstan", "Agriculture, forestry and fishery". For the purpose of accurate calculations the data of certain enterprises and power plants is used according to international methodology and requested from enterprises directly by the organization responsible for inventory.

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34 http://www.stat.kz/publishing/20121/%D0%98%D0%BD%D0%B5%D1%80%D0%B0%D0%BA%D1%82%D0%B8%D0%B2%20%D0%9E%D0%9E%D0%A1%2011.pdf

The climate change, other than reporting to the UNFCCC, is the part of NSoERs. There are thematic assessments on climate change mitigation and adaptation, provided under several UNDP and other international organizations' projects in Kazakhstan. These assessments are of not regular character and information for them is based on works of experts within respective projects.

2.2.2.2. Review and analysis

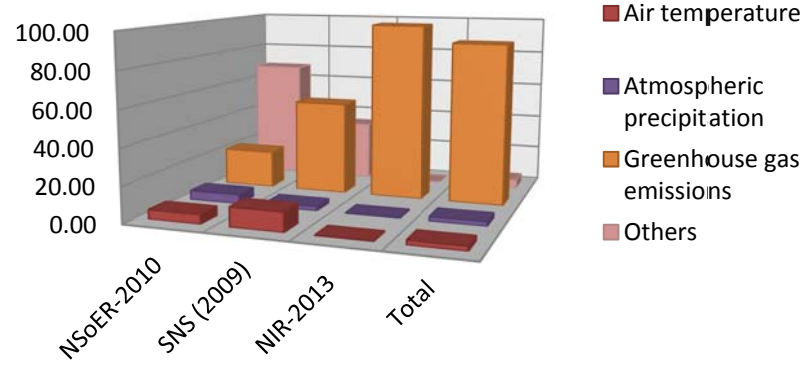
For the purpose of the thematic review of indicators and topics on climate change the NSoER-2010, SNC-2009 and the NIR on GHG (2013) were selected.

Due to the entire climate change focus of the SNC and NIR on GHGs, there is no graph showing the share of climate change in the assessments. In the meantime in NSoER-2010 the climate change makes 7.9% of its total volume (Annex 4, Table 2).

NSoER-2010 contains the Chapter on climate change[35] with topics on GHG emission, weather and hydrological features for 2010, condition of the surface and the ice/frost conditions of the Caspian Sea, hazardous hydro meteorological events and ozone distribution.

Atmospheric temperature, atmospheric precipitations and the GHG emissions are in the set of the UNECE indicators on climate change for EECCA countries (Annex 4, Table 2). NSoER-2010 considers all three recommended indicators and additionally considers hazardous hydro meteorological events and ozone distribution. For the purpose of comparison of NSoER-2010 and other climatic assessments in Kazakhstan, there are sub-topics and subjects proposed by EEA (Annex 4, Table 2).

Figure 2.6: The share of CC indicators in selected assessments



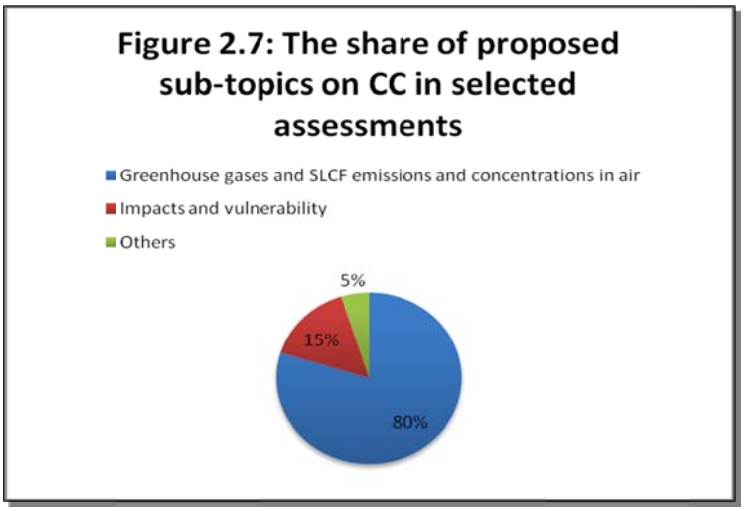
The set of UNECE climatic indicators (Figure 2.6) is covered in all three assessments. The NSoER-2010 contains separate chapter on climate change, but it is not entirely focused on the UNECE indicators on climate change. More than 60% of it is dedicated to hazardous hydro meteorological events and ozone distribution. Each of the three UNECE recommended indicators make less than 20% in NSoER-2010. GHG emission makes almost 20% and two others covered at considerably lower rate.

[35] http://www.eco.gov.kz/doki/Monografy.pdf, pgs. 15-29

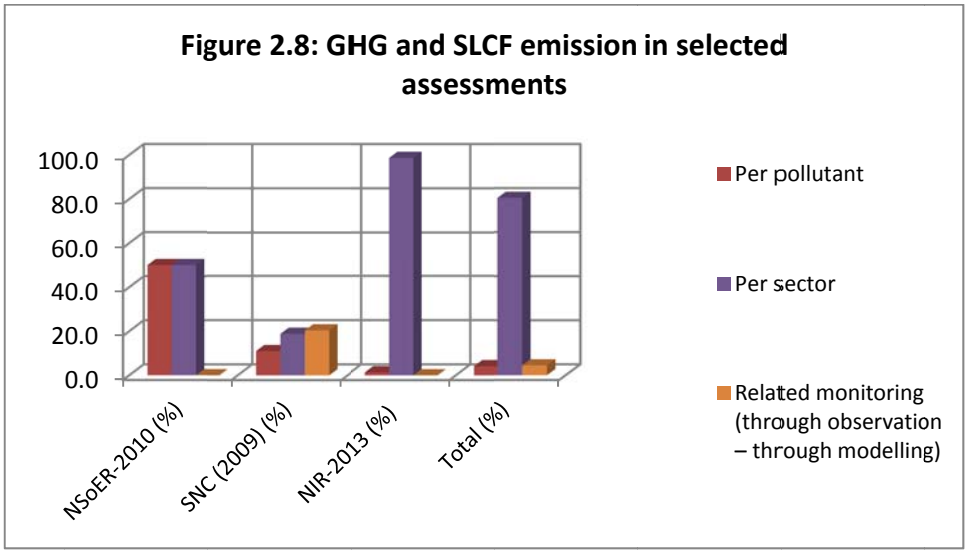
SNC makes better focus on GHG emissions, while other indicators are presented to a lesser extent. The NIR on GHG-2013, in a view of its objectives, makes almost entire focus on GHG emission.

As for the overall picture on indicators, the major climate change assessments in Kazakhstan reflect the nature of country's obligations under the major climatic MEAs with considerable prevalence of GHG emissions, for which Kazakhstan puts efforts to assess and reduce. Also, it should be taken into consideration that one of three major climatic assessments in the country is specifically dedicated to GHG emissions'.

The overall comparison of the three assessments with sub-topics proposed by EEA is shown at Figure 2.7. The GHG emissions make up 80% against 15% of the impact and vulnerability.

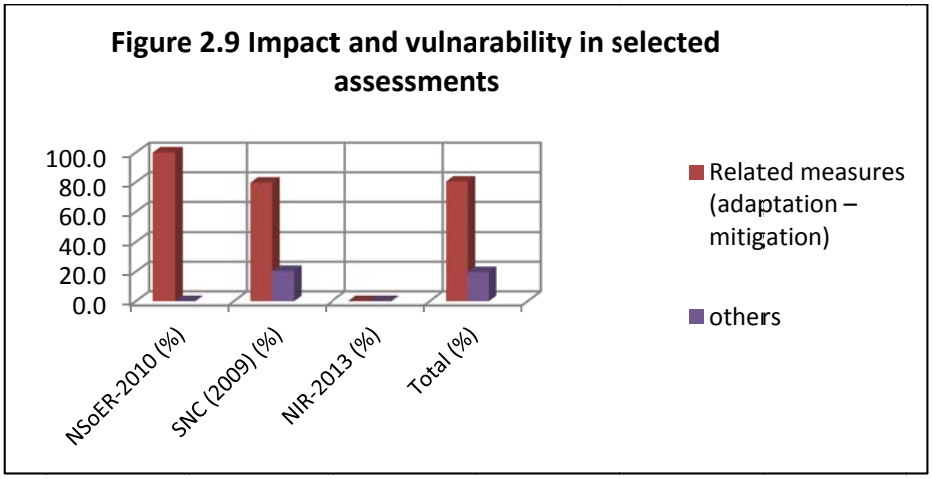


Further consideration of thematic features of climatic assessments (Figure 2.8) shows that in GHG and SLCF emissions, the NSoER-2010 pays even attention to emissions per pollutants and per sector, while it does not show the related monitoring.



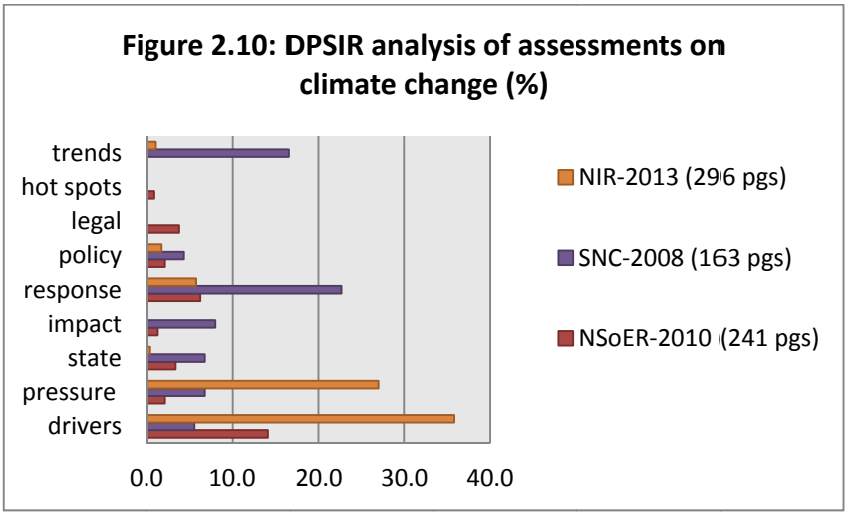
SNC-2009 presents comparably even consideration of all three subjects with some prevalence of the related monitoring. The NIR-2013 makes almost entire focus on the per sector emissions. Because the NIR-2013 is specifically focused on GHG emissions, the overall picture shows that Kazakhstan improved the assessment of the per sectors' GHG emissions.

As for the impact and vulnerability (Figure 2.9) the NSoER-2010 and SNC-2009, because of their focus and comprehensiveness covering climate change issues, give information on related mitigation and adaptation measures. In the meantime NIR-2013 also in a view of its objectives and scope does not provide any data related to the climate change impact and vulnerability.



Future NSoERs and the upcoming Third National Communication on climate change in Kazakhstan could benefit from NIR-2013, which can be used as a valuable source providing detailed per sector inventory of GHG emission. Thus, assessments on mitigation and adaptation measures can be improved.

The Figure 2.10 shows DPSIR analysis of climate change in selected assessments. Despite the fact that the pure data and information on climate change constitutes only 7.9% of the NSoER, it includes chapters containing "drivers" for climate change, "response", "policy" and "legal" measures toward climate change mitigation and adaptation. NSoER considers as a hotspot the situation on Aral Sea, which is mainly manmade and partially climatic by its impact.



The SNC as the most comprehensive assessment on climate change covers most of DPSIR components focusing mainly on "impact", and to a lesser extent on "response" and "trends" related to climate change.

The NIR on GHGs due to its nature and objectives makes the strongest focus on "drivers" causing the climate change and their "pressure".

An aggregated consideration of the DPSIR observance in Figure 2.10 shows good coverage of "drivers", "pressure" and "trends", which was not the case in the EE-AoA-CA. Thus they are better sources for decision makers to undertake "policy", "legal" and further "response" measures toward climate change mitigation and adaptation.

2.2.3. Biodiversity

2.2.3.1. Overview of the reporting

Biodiversity monitoring is a complex aspect of the environmental monitoring, which in most of cases cannot be based on the static observations. And, there are two areal peculiarity of the biodiversity monitoring: within and outside of protected areas.

The monitoring in protected areas (nature reserves and national parks) is the most consistent and continuous process of monitoring of the biodiversity in the country. The data reporting system is historically formed in use of a specific set of indicators in the "Chronicle of Nature", reported by administrations of protected areas to the CFH MoEP.

The Chronicle of Nature is the annual summary of data on the status of the protected areas and biodiversity components, including protected plant and animal populations and protected nature sites. Some Reserves maintain such records for already 40-50 years and include ongoing data on the number of animals, biodiversity and dynamics of the ecosystem. However, it was always the problem that the Chronicle of Nature was the set of separate facts, results, measurements, animals' counts and other observations with very weak link to the ecosystem.

The reasons for the lack of information on biodiversity is based on outdated system of data and information gathering from protected areas, limited use of modern remote methods of the biodiversity monitoring and data gathering, absence of the network and facilities to collect relevant information outside of protected areas.

The data and information on biodiversity out of protected areas are provided by CFH MoEP and ASK and mainly reflect performance of the Forestry and data of the hunting entities.

CFH provides its performance based data from its entities around the country on the land covered by forest, the total stock of standing timber, forest land with breakdown by the main dominant species (pine, hardwood, softwood, saksaul), data on reforestation, forest area and other wooden lands, including protected areas, on the ratio of the total forest area and other land covered by forest to the total land area, forest stock and composition by species in cubic meters.

Currently, the most comprehensive data on the status of biodiversity, ecosystems and landscapes, habitats for flora and fauna, as well as on biological resources of the country are in NSoERSs, published from 1991 to 2011. Another official source of information on biodiversity is the national reports on biodiversity to the Secretariat of UNCBD, produced once per 3-4 years.

ASK, on the base of data from MoEP and its Committees, provides statistics on biodiversity, which then used for reporting under MEAs and in NSoERs. The statistical compendiums EPSE 2007-2010 (2011) "Agriculture, forestry and fishery in the Republic of Kazakhstan 2007-2010" (2011) with statistics on biodiversity are published and accessible on-line.

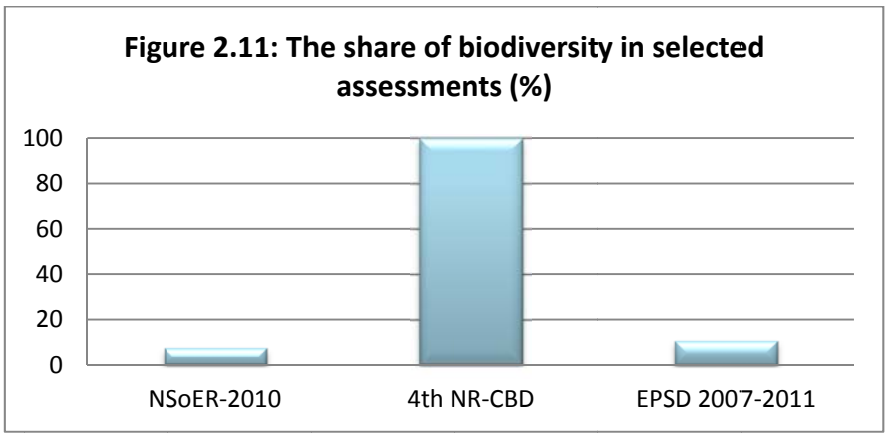
The national report on the Implementation of Ramsar Convention on Wetlands is reported to the Conference of Parties of the Convention[36] . The last report was developed in 2008 and reported to 10th Meeting of Parties. This report is available on the website of the Secretariat of the Convention in English.

The Second National Report on the implementation of the Cartagena Protocol[37] for the period from 2008 to 2011was prepared by the National Centre for Biotechnologies of the Committee of Science of the MES. Free access to the report is available on UNCBD web-portal.

2.2.3.2. Review and analysis

The NSoER-2010, Fourth National Report to UNCBD (4th NR-CBD) and the EPSD 2007-2011 are the assessments reviewed and analysed on relevance of the UNECE indicators' set, on sub-topics and subjects provided by EEA.

The total coverage of the biodiversity in NsoER-2010 is 7,5% and in the EPSD 2007-2011 is 10,6%, while the 4th NR-CBD is entirely dedicated to the biodiversity (Figure 2.11).



Protected areas, forests and other wooded lands, threatened and protected species, trends in the number and distribution of selected species are the UNECE environmental indicators on biodiversity.

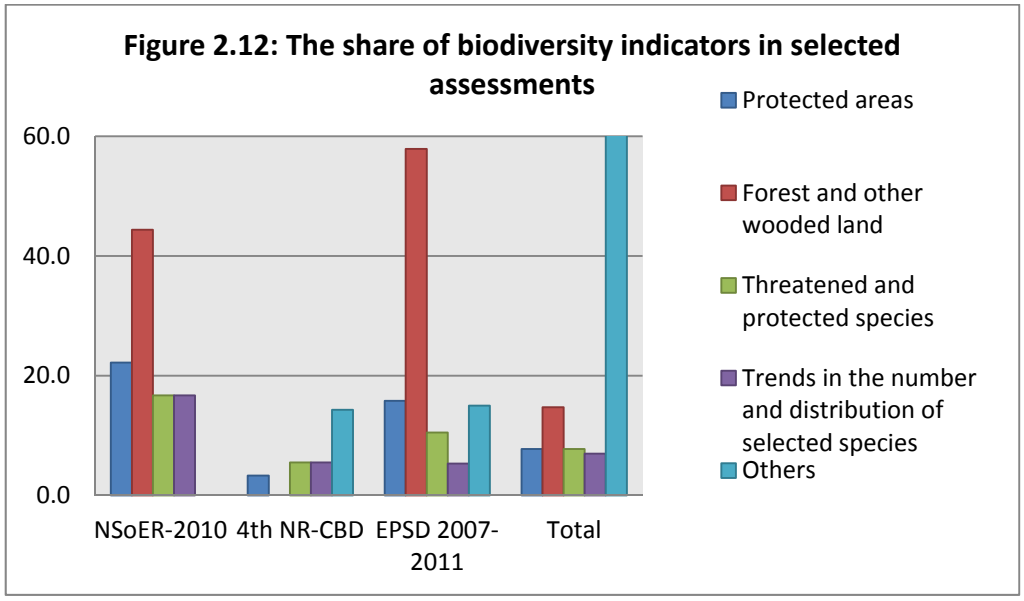
NSoER-2010 is the source covering these four indicators. The most widely presented among indicators are the forests and other wooded lands (44%) and protected areas are the second well covered indicator (22%) (Figure 2.12).

Availability of sectoral statistics on Forestry, data and information on the base of reporting by protected areas are the sources and the reason for comparably strong presence of these indicators in NSoER-2010. There are two separate sub-chapters dedicated to above two indicators with clearly presented graphs.

Two remaining indicators are covered by one sub-chapter and with only one table dedicated to only one of the protected species[38]. Other data and information in this sub-chapter are sourced

[36] http://www.ramsar.org/pdf/cop10/cop10_nr_kazakhstan.pdf, pgs 2-3
[37] http://bch.cbd.int/database/record.shtml?documentid=102592
[38] http://www.eco.gov.kz/doki/Monografy.pdf, pg 115

from the reports of hunting and fishing entities and this is descriptive information, mostly counting species.



The same is observed in the EPSD 2007-2011, which uses the same as for NSoER data and statistics. More than 50% of statistics and data in it cover forests and wooded lands. Protected areas are covered for 15% and other two indicators less than for 10% each. Such composition of shares is also the matter of data and information availability.

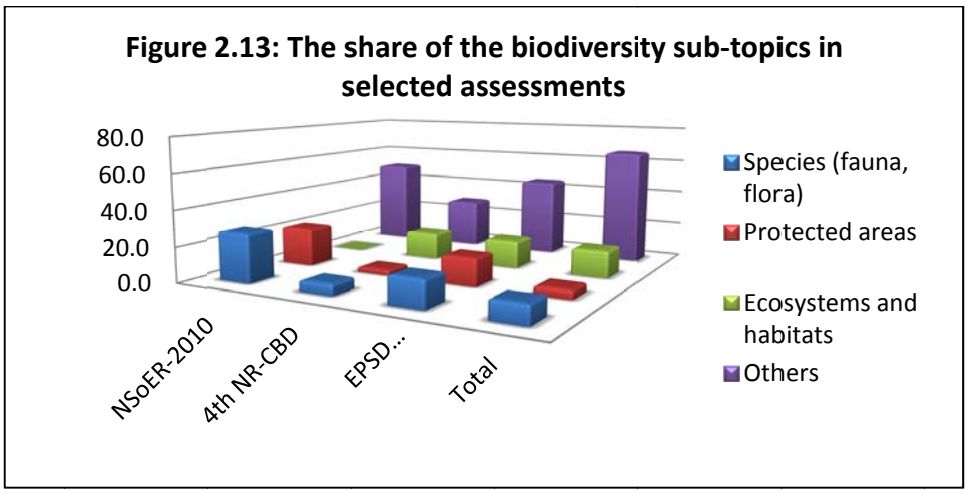
The 4th NR-CBD due to the focus on other priorities and its scope does not cover well the UNECE indicators.

The summed up composition of selected assessments on biodiversity ("Total" in Figure 2:12) compared to the set of the UNECE indicators shows low coverage of them and presents almost 60% of the information not directly related or uncertain to these four indicators.

The set of subtopics proposed by EEA includes three subtopics: species (fauna, flora), protected areas and ecosystems and habitats. Then the "Species" are considered as protected internationally (CITES), protected nationally and invasive and alien ones. Protected areas, meanwhile, are considered also as protected either internationally or nationally (Annex 5, Table 1.3).

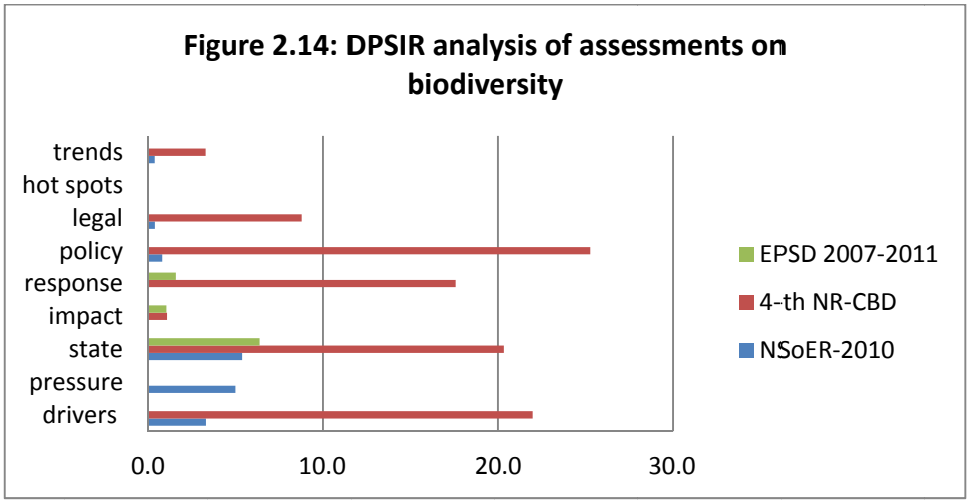
In NSoER-2010 as well as in the EPSD 2007-2011 (Figure 2.13), due to comparably extended availability of forests, hunting and fishery statistics, data and information from protected areas the species and protected areas as subtopics presented better than ecosystems and habitats. Meanwhile in both sources, the information and data not relevant to the sub-topics presented by EEA makes more than 40% and up to 40% respectively ("Others" in Figure 2.13).

Ecosystems and habitats in the EPSD 2007-2011 are presented comparably well (15,8%), because the lands covered by forest, statistics on the area of protected territories are counted as ecosystems and habitats. In the meantime the NSoER-2010, presents no description of ecosystems almost at all.



The 4th NR-CBD in a view of its objectives and scope presents ecosystems and habitats (15%) and provides very weak presence of two other subtopics, while prioritising other subtopics and subjects (28%).

Consideration of other biodiversity assessments such as the national report to the Ramsar Convention might slightly change the picture toward improved presence of protected areas and species, but considering three assessments per each thematic area was taken as the term for equal consideration of them on the base of the same number of sources.



The 4th NR-CBD in Figure 2.14 presents comparably good focuses on policy settings, then on drivers, on the state and then on the responses within the DPSIR framework. It also shows some focuses on legal aspects of the biodiversity conservation and management, much lesser on trends and no focuses on the hot spots.

In the EPSD 2007-2011 it was difficult to classify statistics under drivers, pressure, legal aspects, trends and hot spots. Meanwhile, the state of the biodiversity, impact and responses were found in the statistics in the EPSD 2007-2011.

NSoER-2010 observes the state, policy, legal and trends in its biodiversity chapter[39]. However it does not contend any information on impact and responses. Drivers and pressure were included through review of chapters on agriculture, land resources. It is to be noted that for DPSIR analysis the NSoER-2010 with its 241 pages and EPSD 2007-2011 with its 188 tables were fully reviewed.

[39] http://www.eco.gov.kz/doki/Monografy.pdf, Chapter 12, pgs: 105-119

2.2.4. Wastes

2.2.4.1. Overview of reporting

The ASK and MoEP are in charge of the statistical and substantial reporting on the state of the waste management in the country.

Basic statistical reporting is done by municipalities and by CERC MOEP to ASK on formation and disposal of the municipal and hazardous industrial wastes respectively.

EPSD-2007-2011 presents statistics on hazardous industrial and municipal wastes in Kazakhstan. NSoERs are other source on the state of waste management in Kazakhstan.

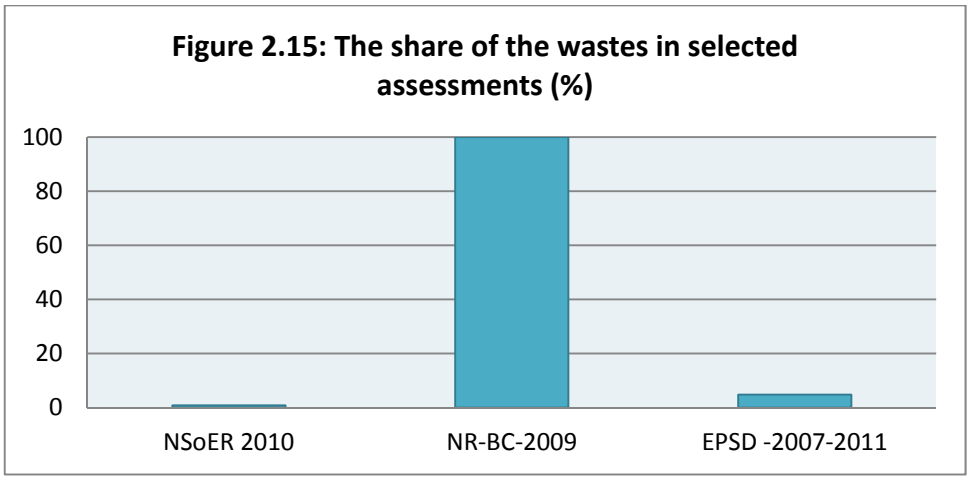
Kazakhstan submits regular reports on wastes under the three Conventions: Basel, Stockholm and Rotterdam Conventions. IAC EP is responsible for reporting to Secretariats of above conventions. The status of the reporting is presented in a Table 1 of Annex 3.

2.2.4.2. Review and analysis

For the purposes of review and analysis the NSoER-2010, EPSD-2007-2011 and the National Report to Basel Convention on Controlling transboundary movement of hazardous wastes and their disposal for 2009 (NR - Basel Conv – 2009) are selected.

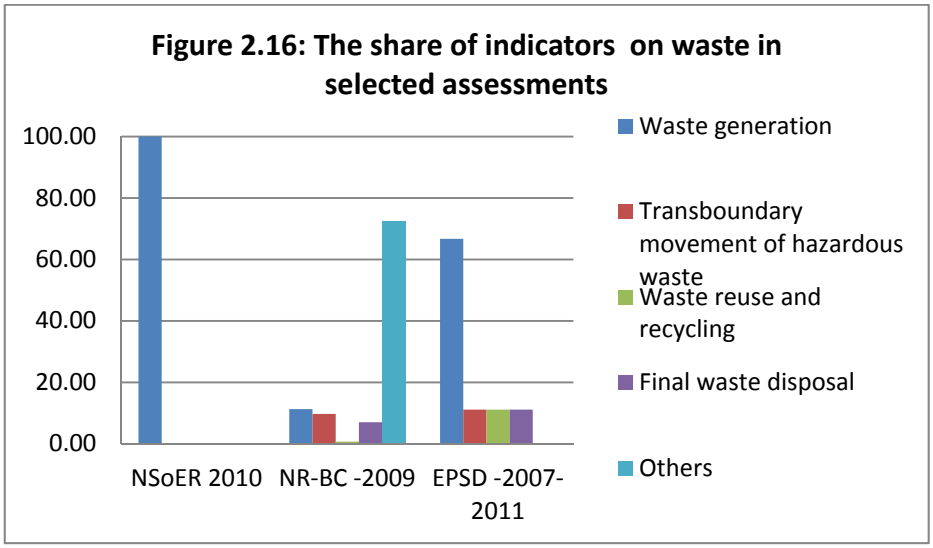
As it was already mentioned, the NSoER-2010 and EPSD-2007-2011 are subject for a review and analysis through other thematic areas as well in a view of their objectives and scope, which were gradually formulated, including through the process of the Pan-European cooperation on environmental reporting and environmental statistics. These reports are subject for comparison of the performance and the state of reporting in relevant thematic areas among countries, where this AoA is exercised.

Figure 2.15 shows that the waste in NSoER-2010 makes less than 1% of its total volume. In EPSD-2007-2011 wastes make less than 5% and NR-BC-2009 is a fully wastes' dedicated assessment.



There are following four indicators on wastes in the UNECE set of environmental indicators: waste generation, transboundary movement of hazardous waste, waste reuse and recycling, final waste disposal.

In Figure 2.16 it is shown that the waste disposal is only the indicator found in NSoER-2010 and through the whole chapter of two pages it was not possible to find neither other three indicators nor anything else waste's related.



The NR-BC-2009 shows all four UNECE indicators, but at the rate less than 10% each and the waste reuse and recycling even less than 1%. Meanwhile, the fully waste dedicated report for more than 70% is dedicated to other aspects of waste management, including the methodology, special questionnaire and templates.

EPSD-2007-2011 shows all indicators and if waste generation is the most presented through six tables on its various aspects, three others each presented in separate table bearing identical name with these indicators.

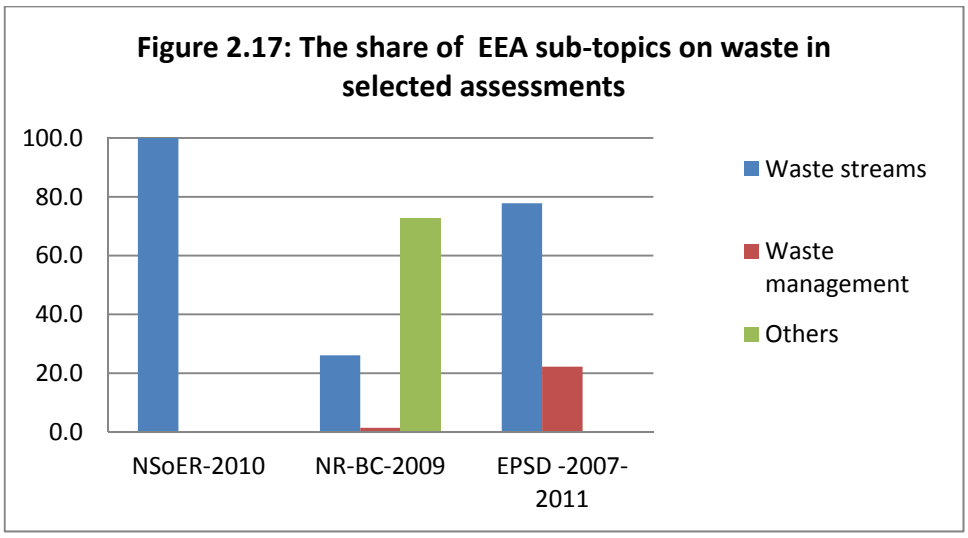
Selected assessments consist of very limited information and data on the UNECE waste indicators and it is presented in very short descriptions and some tables, on the base of which it is difficult to find features for comparison and analysis, what usually indicators are used for.

EEA for the purpose of this assessment has proposed waste stream and waste management as sub-topics each of them comprising of the same four subjects as municipal/household, industrial, hazardous wastes and the transboundary movement of the waste.

For classifying subjects either under waste streams or under wastes management, it was found if assessments or statistics consider only quantity of generated waste and its trasboundary movement – these are waste streams and when assessments consider efforts on waste reuse and recycle, disposal, landfill management – these are waste management. Data and statistics on entities collecting and disposing waste were considered under the waste management.

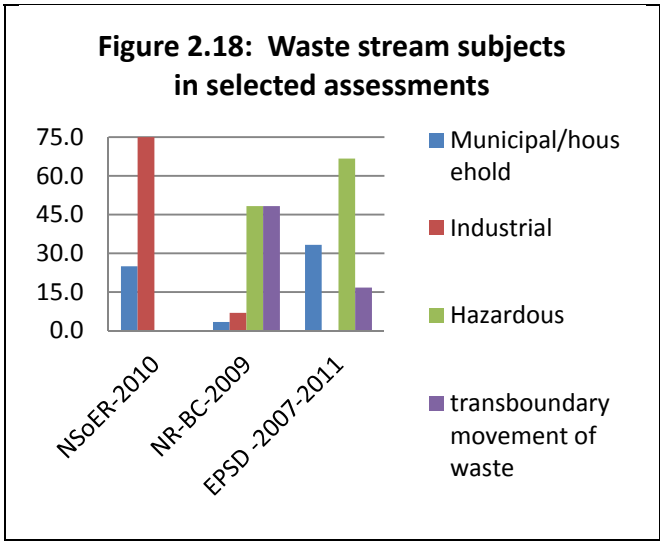
In NSoER-2010, since it is almost entirely dedicated to describing the state of waste generation (the waste stream), it was not possible to find subjects under the waste management (Figure 2.17).

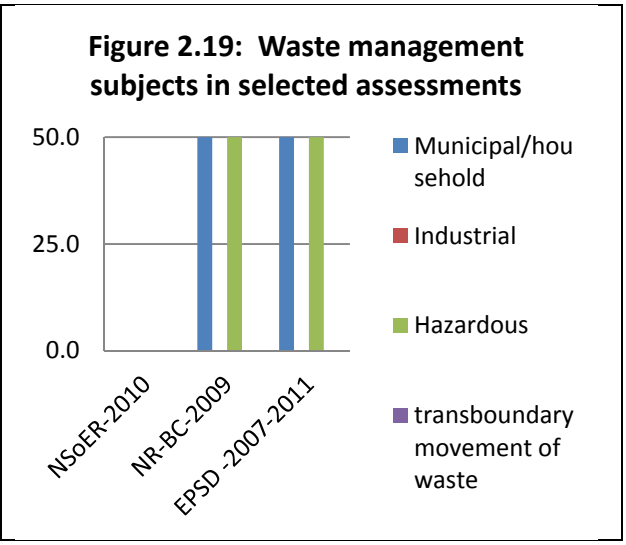
In NR-BC-2009, as it was mentioned while considering indicators, more than 70% is on methodology and only 27% and 2% respectively on waste streams and management.



EPSD-2007-2011 consists of some statistics on waste management through several tables on waste recycling, disposal and on the entities collecting and disposing the waste, however almost 80% of the statistics is on wastes stream.

As NSoER-2010 considers no waste management (Figure 2.19), within waste streams it is focused mainly on industrial and on municipal/household wastes (Figure 2.18).

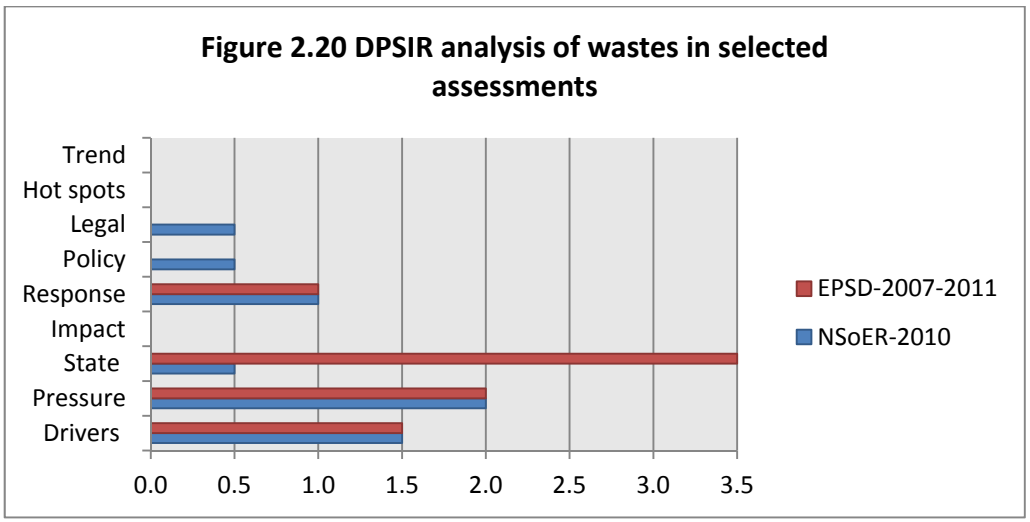




NR-BC-2009 comprising of limited factual information on wastes (Figure 2.17) and due to its scope makes focus on hazardous waste and its transboundary movement and also includes limited information on the industrial and municipal/household ones under waste streams (Figure 2.18) and under the waste management, which is less than 2% in it (Figure 2.17), shares evenly information on municipal/household and hazardous wastes (Figure 2.19).

EPSD-2007-2011, with limited consideration of the waste management, presents only some statistics on the municipal/household and hazardous wastes (Figure 2.19) and under waste streams (Figure 2.18) it presents statistics on hazardous wastes and their transboundary movement.

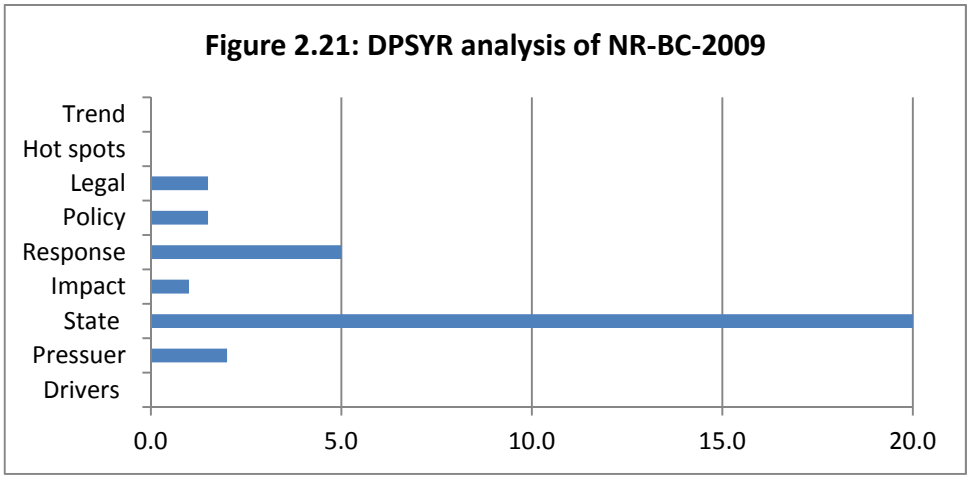
For DPSIR analysis, selected assessments on waste were considered separately in Figures 2.20 and 2.21. The reason for separation was the small scale (0% - 3,5%) of DPSIR observance in NSoER-2010 and EPSD 2007-2011 (Figure 2.20), comparing to NR-BC-2009, where the waste related state made up to 20% of the publication (Figure 2.21).



While analyzing NSoER-2010 and EPSD 2007-2011, entire publications were checked through for observance of the DPSIR chain. Some aspects of the general legal, policy and response measures on environmental protection were found reasonable to consider for wastes in NSoER-2010.

The chapter on waste and industries in NSoER-2010[40] was at half considered under the state analysis and half under the pressure. From the introductory chapters on general features and on social-economic conditions[41] the remaining shares of the pressure and drivers as whole were found.

EPSD-2007-2011 has got better layout on the state through a number of tables on the waste statistics and few of which on waste recycling and disposal can be considered as response measures. Drivers and pressure were found in chapter on social, economic and environmental factors of the EPSD -2007-2011[42].



NR-BC-2009 is prevailingly focuses on the state, related to the hazardous wastes and their transboundary movement. Some response, pressure, policy, impact and legal analysis were found as well (Figure 2.21).

[40] http://www.eco.gov.kz/doki/Monografy.pdf, Chapter 12, pgs 103-104
[41] http://www.eco.gov.kz/doki/Monografy.pdf, Chapters 1-2, pgs:13-17
[42] http://www.stat.kz/publishing/20121/%D0%98%D0%BD%D0%B5%D1%80%D0%B0%D0%BA%D1%82%D0%B8%D0%B2%20%D0%9E%D0%9E%D0%A1%2011.pdf, Chapters 2-4, pgs: 6-61

3. KYRGYZSTAN

3.1. SETTING THE SCENE

3.1.1. Country situation with assessments: post-Astana progress and trends

As it was mentioned in the Introduction, there were identified twenty eight assessments (Annex 1, Table 2) on air, climate change, biodiversity and wastes to upload to the Virtual Library of the EEA EE-AoA web-portal. These assessments include:

- One NSoER for 2006-2011[43]
- Three national reports to MEA
- One national strategy[44]
- One national programme[45]
- One UNECE Guidelines[46]
- Four statistical compendiums
- Fourteen thematic publications, funded by the international organizations (UN System, World Bank, etc), and
- Three thematic publications by national institutions.

Kyrgyzstan is a party to thirteen environmental MEAs[47], including three UNECE Conventions. Kyrgyzstan implements its reporting obligations under eleven MEAs and does not reported to Stockholm Convention yet (Annex 3, Table 3.2). Among MEA reports to be referred and assessed in this AoA are the Second National Communication on climate change (SNC), Fourth National report to UNCBD[48], reports to Ramsar Convention, to UNECE Convention on Long-range Transboundary Air Pollution.

The NSoER-2006-2011 is environmental indicators' based report[49]. The report encompasses nine chapters including on air pollution, climate change, biodiversity and wastes, those assessed in this AoA. The thematic area "Environment and health of population" has been introduced as an additional chapter of the report, which was not foreseen by relevant UNECE Guidelines. The report reviews applicability of all thirty six recommended indicators and updates on existing gaps in the environmental data and information against this set of indicators.

Statistical data/indicators of the National Statistical Committee (NSC) and Agency of Hydrometeorology under the Ministry of Emergencies and Civil Defense (KyrgyzHydromet),

[43] http://www.nature.kg/images/files/bookND_web.pdf
[44] http://www.nature.kg/index.php?option=com_content&view=article&id=565%3A2013-01-25-09-38-35&catid=34%3A2009-01-28-16-47-09&Itemid=69&lang=ru
[45] http://www.med.kg/Articles/ViewSection.aspx?ArticleID=383
[46] http://www.unece.org/index.php?id=30339
[47] http://www.nature.kg/index.php?option=com_content&view=article&id=37&Itemid=74&lang=ru
[48] http://www.cbd.int/doc/world/kg/kg-nr-04-en.pdf
[49] http://www.unece.org/fileadmin/DAM/env/europe/monitoring/Publications/Indicators_Assessment/documents/Publication.Indicators___Reporting._ECE-CEP-140_Eng_final.pdf

data from the Department of Water Resources under the Ministry of Agriculture and Melioration (DWR MAM) and from several other agencies was collected, aggregated and reported in there. Data and information of respective Institutes of the National Academy of Sciences were also used in this report.

It was recommended to Kyrgyzstan by Astana EE-AoA to explore opportunities to improve the state of environment reporting[50] in use of relevant UNECE Guidelines. Therefore, new NSoER-2006-2011 can be considered as implemented recommendation of the Astana EE-AoA.

Astana EE-AoA also recommends to Kyrgyzstan to revive nationally funded regular publication of NSoERs[51]. In this regard it is to be noticed that SoER type "Environmental Outlook of the Kyrgyz Republic"[52] published in 2009 was funded by UNEP and NSoER-2006-2011 was funded by UNDP-UNEP "Poverty and Environment Initiative"[53] (PEI) project in Kyrgyzstan. Therefore, above recommendation is still valid.

As for found by Astana EE-AoA dependence of Kyrgyzstan on the official development aid (ODA) and international programmes and projects[54], fourteen new assessments by international development agencies uploaded to the EE-AoA Virtual Library proves the tendency of ODA dependence of Kyrgyzstan in development of environmental assessments.

One of the key recommendations of the Astana EE-AoA to Kyrgyzstan, similarly to other Central Asian countries, was to establish the cooperation with relevant EU institutions and other international organizations for development of SEIS[55].

Kyrgyzstan in cooperation with CAREC made certain progress in this direction. There was established the inter-agencies working group on SEIS (SEIS WG), including officially appointed representatives of the Ministry of Economy (ME), SAEPF, NSC, KyrgyzHydromet, DWR MAM.

The SEIS WG was a platform to discuss gaps in data and information availability for NSoER - 2006-2011 and to propose solutions to improve the water and wastes statistics, among other components of the environmental statistics. Under recommendations of SEIS WG the national activities on the SEIS related component of the EU AWARE project and the project on improvement of the environmental statistics on water by CAREC within 2011 and 2012 were designed and implemented.

Upcoming EU project on improvement of the environmental monitoring in Central Asia (MONECA) is to establish cooperation with SEIS WG in Kyrgyzstan as a platform for further promotion of SEIS in Kyrgyzstan.

It was also recommended to Kyrgyzstan to explore opportunities for further integration of relevant recommendations of the Second EPR of Kyrgystan (2009)[56]. It is referred here, because in this AoA the status of recommendations toward considered thematic areas and the status of the gathering the environmental data and information, reporting and assessments are to be reviewed and commented.

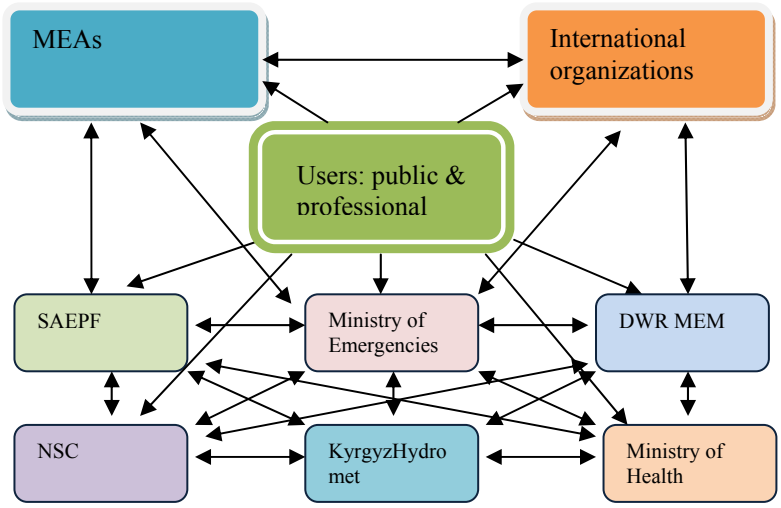
[50] Europe's Environment – Central Asia – An Assessment of Assessments, CAREC, 2011, pg 73.
[51] Europe's Environment – Central Asia – An Assessment of Assessments, CAREC, 2011, pgs 72-73.
[52] http://www.nature.kg/images/files/eco.pdf
[53] http://www.undp.kg/en/component/resource/article/1-projects/2094-poverty-environment-initiative
[54] Europe's Environment – Central Asia – An Assessment of Assessments, CAREC, 2011, pg 72.
[55] Europe's Environment – Central Asia – An Assessment of Assessments, CAREC, 2011, pg 73.
[56] http://www.unece.org/env/epr/publications.html

3.1.2. The current state of the environmental information and data flow

The environmental data and information in the country are aggregated and reported to MEAs, presented in NSoERs. Initial data is gathered by NSC, KyrgyzHydromet, SAEPF and several other agencies and institutions.

The principal scheme of the environmental data and information flow among responsible governmental agencies and institutions as of providers and the general public, expert community, international organizations and Secretariats of MEAs as of its users is shown in Chart 3.1.

Chart 3.1: Principal scheme of the environmental data and information linkage and flow in Kyrgyzstan



For the purposes of reporting to MEAs, missing data and information is gathered in the project format within ODA funded international projects.

Availability of the environmental data and information is an issue for Kyrgyzstan, because of the narrow environmental monitoring base, covering only several parts of the country. Data gathering on emissions, waste waters and wastes is under the NSC and requires considerable improvement. There is no much difference in available and accessible data and information. Usually, what available and exists is accessible on-line on bellow web-resources.

In the reality, the data and information gathering is a huge work done by experts, usually employed for ODA funded projects to develop reports to MEAs or NSoER. They spend enormous time and efforts to collect needed data and information. Very often they start from the web-sites of MEAs in order to extract data from previous reports, and then go to the web-sites of other international organizations and then only they go to web-sites of the national institutions with very limited data needed for reporting.

There is an official procedure of written official requests, if needed information is not accessible on-line. But usually as data are not available, requested governmental agency or national institution either provides estimations or does not provide requested information at all. For delivering estimated data, there is a need in additional time and resources to employ experts to produce estimated data. In some cases, when data is kept in hard copies, it takes time for responsible agency to provide soft copies of it.

There is a legal requirement to exchange data and information among governmental agencies for reporting purposes to MEAs, which is also not effective because of above mentioned issues with data availability.

Most of environmental data used in various reporting to MEAs and in NSoER is vary, but mainly goes to the period 1995-2008. One of the reasons for such situation is in last Statistical Compendium "Environmental protection in the Kyrgyz Republic for 2000-2006"[57], which was published in 2008 under the financial support of UNDP. It is still the most comprehensive and full environmental data source for Kyrgyzstan. The fact that the SNC-Kg to UNFCCC and the Fourth National Report to UNCBD with plenty of environmental data were completed in 2008 is also the reason, why most of data goes before 2008. This also proves project and ODA dependence of the environmental data and information gathering and aggregation in Kyrgyzstan.

In order to improve the data and information availability, it is necessary, first, to establish the system of effective data gathering and its exchange among responsible governmental agencies, second, to develop facilities for data digitizing and storage.

One of the ways of improving data availability could also be in further improvement of capacities of NSC with further improvement of the statistical reporting directly from local entities, authorities and institutions to local statistical departments.

The Table 3.1 presents the most valuable national web-resources with environmental data and information. CARNET is a Central Asian web-portal on the area of environment and sustainable development. It contains "Publications" section with sub-sections for each Central Asian countries, including Kyrgyzstan.

Table 3.1: Key web-resources on environmental data and information in Kyrgyzstan

Agency/institution and its web-sites	Key environmental information and data contained
SAEPF - **http://www.nature.kg/**	- Brief overview of the state of environment, including on: • Air quality • Climate change • Water and land resources • Biodiversity and forestry • Protected areas, • Wastes - Reports to Aarhus Convention - Publications (all together 27), including NSoER – 2006-2011, SNC-Kg
KyrgyzHydormet **http://www.meteo.ktnet.kg/**	- Air quality for four cities (monthly updates) - Water quality for Chui River basin
NSC **http://www.stat.kg/**	- statistical compendium: Kyrgyz Republic 2007-2011, including • air emissions, • wastes, • forests - MDG indicators - Country development indicators
Web-Portal CARNET **http://www.caresd.net/**	- Publications

Major on-line sources of the environmental data and information are the web-site of the SAEPF, NSC, KyrgyzHydromet, UNDP funded environmental web-portal CARNET. All sources are

[57] http://www.caresd.net//site.html?en=0&id=21962

available only in Russian language. There is no national web-resource with uploaded national reports to MEAs. These reports can be found on web-sites of respective MEAs only.

3.1.3. Brief overview of the institutional settings and funding of the environmental reporting

SAEPF with its subsidiaries is responsible for most of reports under MEAs. DWR MAM is responsible for reporting to UNCCD, KyrgyzHydromet and NSC participate in reporting to UNECE Convention on Long-range Transboundary Air Pollution and NSC also shares reporting responsibility on wastes.

Annex 3 Table 3.2 shows that for reporting to some MEAs, Kyrgyzstan uses GEF funding through UNDP and UNEP. SNC was funded through UNDP/GEF and ongoing preparation of the Third National Communication to UNFCCC is funded by UNEP. Development of Fourth National Report to UNCBD (2008) was funded by UNDP.

As for NSoERs, SAEPF has produced and published them in 1997, 2000 and 2004 in use of own funding. Then it was updated online on the periodic base, but was not published till 2009, when in use of UNEP funding the "Environmental Outlook of the Kyrgyz Republic"[58] was published. It was reviewing the state of environment and there was an attempt to develop it in use of the DPSIR framework[59].

Then for NSoER 2006-2011, it is already mentioned that funding was provided by UNDP/UNEP PEI project. This report was also approved by special Resolution of the Government of Kyrgyzstan (Resolution №553 dated August 7, 2012). This Resolution also confirms responsibility of SAEPF in further development of indicator-based NSoERs with three-year periodicity and in use of the national funding from the National Nature Protection Fund.

The role of ODA and international organisations in production of assessments is crucial. Fourteen uploaded to the Virtual Library assessments were produced within international projects in Kyrgyzstan.

[58] http://www.nature.kg/images/files/eco.pdf

[59] http://www.unece.org/fileadmin/DAM/env/europe/monitoring/Publications/Indicators_Assessment/documents/Publication.Indicators___Reporting._ECE-CEP-140_Eng_final.pdf, pg 66.

3.2. REVIEW AND ANALYSIS OF ASSESSMENTS IN THEMATIC AREAS

3.2.1. Air

3.2.1.1. Overview of the reporting

The key national agencies responsible for monitoring, data and information on the air in Kyrgyzstan are:

- NSC – data and statistics on the emission of air pollutants from the stationary sources;
- KyrgyzHydromet – data and information on air quality;
- Inspection on environmental and technical security – control over air pollution;
- SAEPF - reporting to MEAs, national environmental policy and reporting, international cooperation.

The data and statistics on emission of air polluting substances from the stationary sources is based on the statistical reporting by air polluting entities and enterprises about sources and the quantity of the emission in use of officially approved statistical form – "on protection of the atmospheric air", which is approved by relevant order N14 of the NSC from 02.07.2010.

The data from the stationary sources includes: solid, gaseous and liquid substances, including volatile organic compounds. There are no reported data on heavy metals, POPs and some solid compounds.

In spite of the shortage in reporting on some pollutants, these data show the overall picture and trends on polluting sources and enterprises. There are a range of private sector entities, including in agriculture, not reporting yet to NSC on air pollution.

Then NSC publishes the statistics on air pollution in several publications, including in the: Kyrgyzstan in Figures[60], Statistical Yearbook of Kyrgyzstan[61], Social Trends in Kyrgyzstan[62], and in the Environmental Protection in Kyrgyzstan[63], which is published periodically once in 3-5 years. All publications are accessible online.

KyrgyzHydormet is regularly publishing a yearbook on the state of air pollution in the cities of Kyrgyzstan and on the background concentration of air polluting substances in the cities of Kyrgyzstan. The information presented monthly is accessible on the web-site of KyrgyzHydromet at www.meteo.ktnet.kg/environment_air.php.

The published data covers 5 major cities of the country with 64% of country's population. The data is sourced from fourteen monitoring stations, thus collecting data only on five polluting substances: nitrogen dioxide, sulfur dioxide, nitrogen oxide, ammonia and formaldehyde.

The National Ozone Centre collects data, analyze and develop the reports on ozone depleting substances to the Secretariat of Montreal Protocol. Kyrgyzstan does not produce and correspondingly does not export ozone depleting substances. However it imports them as substances themselves or as compounds. The State Custom Service under the Government of

[60] http://stat.kg/images/stories/docs/tematika/svod/KG%20v%20cifrah.pdf
[61] http://stat.kg/images/stories/docs/tematika/svod/Yearbook%202007-2011.pdf
[62] http://stat.kg/images/stories/docs/tematika/svod/Soz.%20Trendy%202006-2010.pdf
[63] http://www.caresd.net//site.html?en=0&id=21962

Kyrgyzstan quarterly reports to the SAEPF on import and export of ozone depleting substances, including data on importers and exporters for reporting purposes to the Secretariat of the Montreal Protocol.

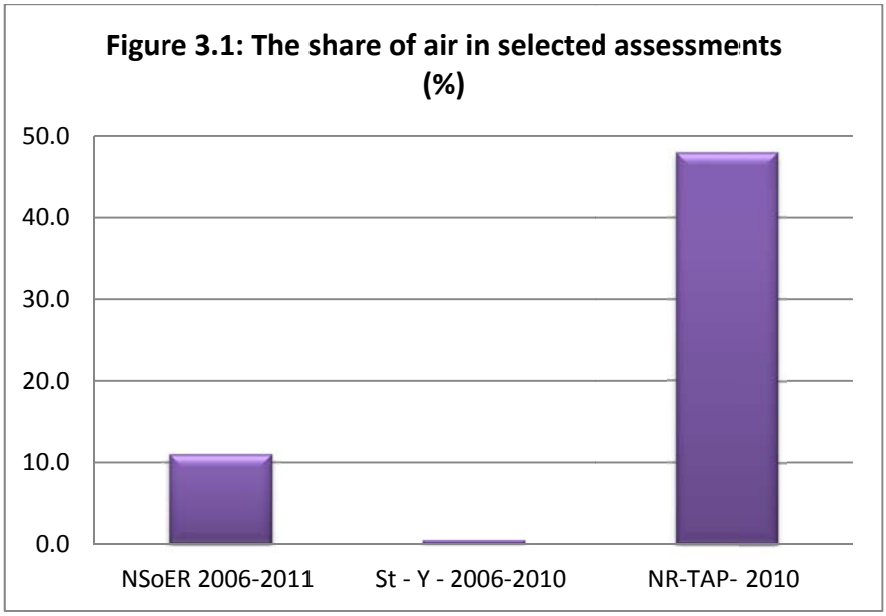
Kyrgyzstan is the Party to the UNECE Convention on Long-range Transboundary Air Pollution (Annex 3, Table2). The Secretariat of on the base of data received from its Parties publishes regular reports "Transboundary air pollution by major polluting substances (S, N, O3)", thus published on the web-site of the Convention.

There are no monitoring and data collection of the air pollution from the mobile sources in the country yet. And therefore, for the purposes of reporting within NSoER 2006-201, the basic emission from the mobile sources was estimated in use of recommendation of МГЭИК. However, there is a problem with obtaining needed data on the fuel consumption and the vehicle fleet of the country.

SAEPF is the agency responsible for development of NSoERs and the last NSoER-2006-2011 includes the chapter on air quality and pollution[64], which was developed in use of the UNECE Guideline on indicator-based reporting [65] and based on most of above data and information.

3.2.1.2. Review and analysis

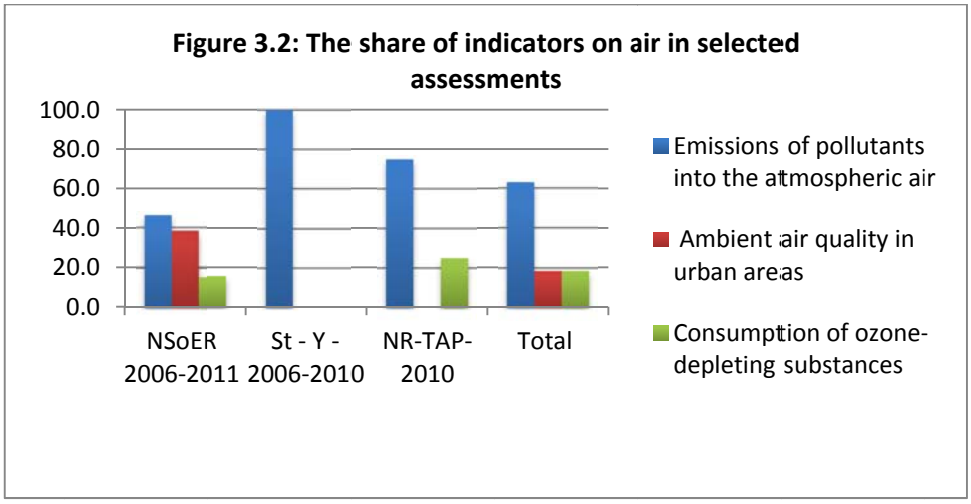
NSoER 2006-2011, the Statistical Yearbook of Kyrgyzstan 2006-2010 (St-Y-2006-2010) and the National Report to the UNECE Convention on Long-range Transboundary Air Pollution for 2010 (NR-TAP- 2010) were selected for review and analysis of the air in assessments.



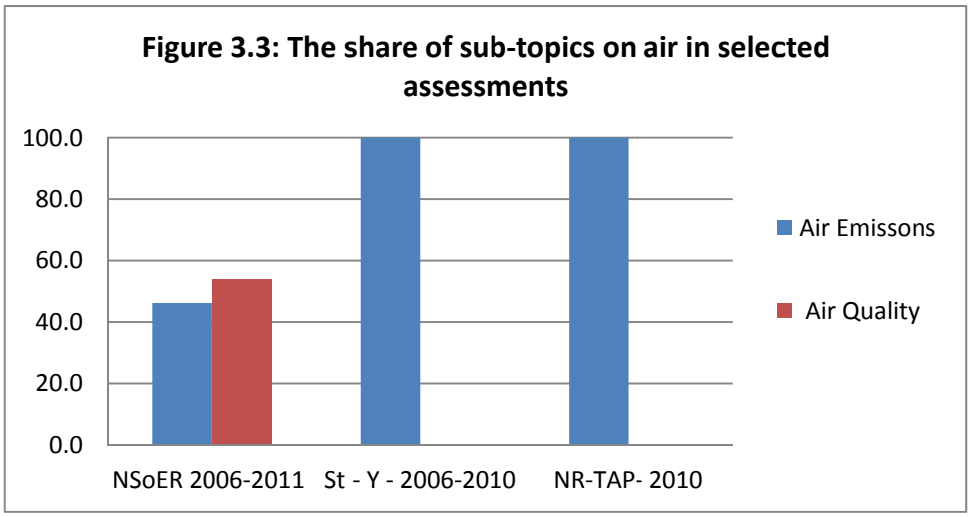
The Figure 3.1 shows the share of the air in selected assessments, which is not high in NSoER 2006-2011(11%) and less than 1% in the Statistical Yearbook 2006-2010 and makes almost half of the NR-TAP-2010, another half of which is dedicated to general features and methodology.

[64] http://www.nature.kg/images/files/bookND_web.pdf. Chapter 1, pgs: 8-21
[65] http://www.unece.org/fileadmin/DAM/env/europe/monitoring/Publications/Indicators_Assessment/documents/Publication.Indicators___Reporting._ECE-CEP-140_Eng_final.pdf

Among UNECE indicators on air pollution (Figure3.2), the emission of air pollutants into the atmospheric air is well represented in all three assessments. Ambient air quality in urban areas is present only in NSoER-2006-201, where the consumption of ozone depleting substances appears as well. These two make around 40% and 17% respectively in the relevant chapter of NSoER 2006-2011. Consumption of ozone depleting substances makes a little more than 20% in NR-TAP-2010. Statistical Yearbook 2006-2010 in its only two tables on air entirely focuses on the emission of pollutants into the atmospheric air.



Comparison with sup-topics proposed by EEA (Figure 3.3) shows that the NSoER -2006-2011 makes focuses on both sub-topics proposed by EEA with slight prevalence on the Air Quality comparing to the Air Emission. The NR-TAP -2010 and the Statistic Yearbook 2006-2010 are fully focused on the Air Emission.



Further analysis of both subtopics under the same set of subjects (related impact, related monitoring, then per sector and per pollutants) is shown in Figures 3.4 and 3.5.

Observing the vast prevalence of the air emission over the air quality the selected assessments are mainly focused on the air emissions per pollutants (Figure 3.4). NSoER-2006-2011 also assesses per sector air emission, while NR-TAP-2010 also focuses on the related impacts of the air emission.

Figure 3.4: The share of the Air Emission subjetcs in selected assessments

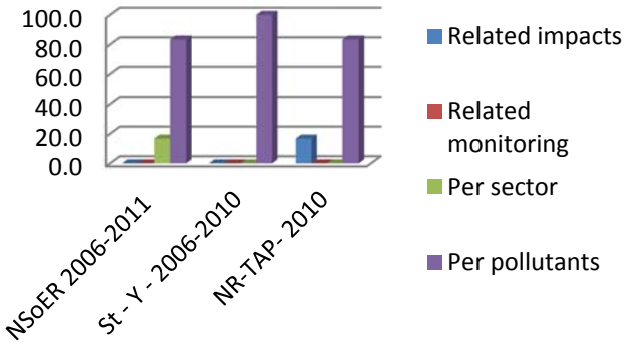
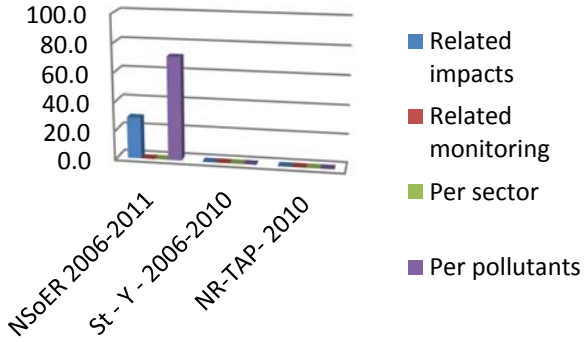


Figure 3.5: The share of the Air Quality subjects in selected assessments



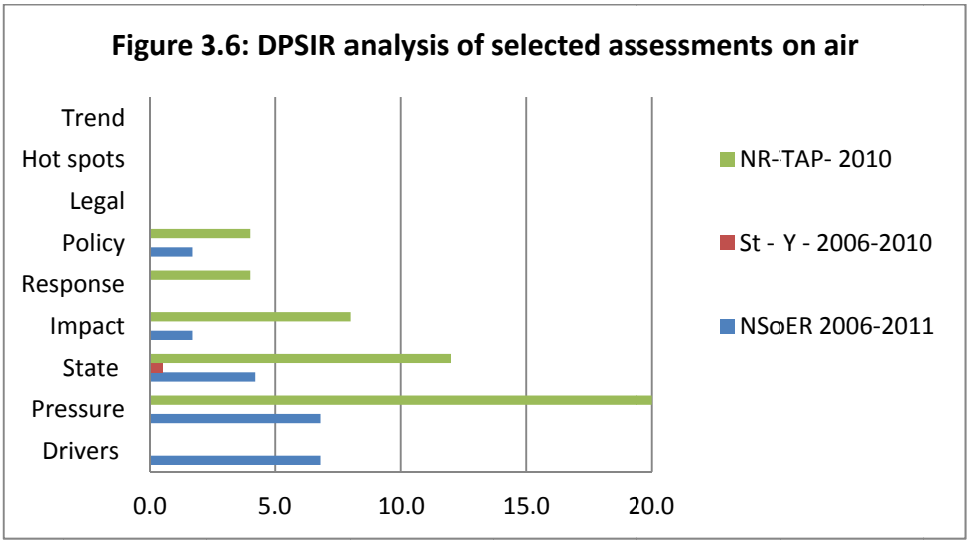
Very limited presence of the air quality in NSoER-2006-2010 (Figure 3.5) is shared by per pollutants' air quality (70%) and the related impact (30%). Other subjects of the air quality are not presented in selected assessments.

The data and information limitedness or unavailability is the main reason of the inability to assess the air emission on such subject as per sector. The problem of very limited monitoring of the air emission from the stationary sources and limitedness of the relevant statistical reporting made by NSC is the reason for that. Then the air emission from the mobile sources is estimated, because legal restrictions to collect and use the data on vehicle fleet.

The situation with air quality monitoring and data reporting is even worse. Per pollutants data is based on the monitoring done by KyrgyzHydromet. There is no data collection and respectively no reporting in the country on such subjects as per sector air quality.

Absence of the reporting on the related monitoring in both air emission and the air quality is to be explained by the absence of the requirement to report neither in NSoER-2006-2010 nor in NR-TAP - 2010. There is still monitoring and it can be described if required.

Figure 3.6: DPSIR analysis of selected assessments on air



The DPSIR analysis of selected assessments (Figure 3.6) shows that the Statistical Yearbook 2006-2010 with its two tables on per pollutants' air emission is entirely on the air related pressure.

The NSoER 2006-2011 focuses on the air related drivers (7%) and pressure (7%), observes the state (4%), impact (2%) and the policy (2%) on the air. Chapters on the energy sector and transport were reviewed to count pages to be presented as drivers for the air pollution.

NR-TAP-2010 comparably well observes the DPSIR with better focuses on the pressure and in a descending order on the air related state, impact, responses and policy.

3.2.2. Climate change

3.2.2.1. Overview of the reporting

As a Party to the UNFCCC Kyrgyzstan is reported the First (FNC) and Second National Communications (SNC) on climate change to the Secretariat of the convention in 2003 and 2008 respectively.

The data collection and where ever it was not possible the estimation of the GHG emission is done in the country only within preparation of the above two Communications, which were developed within relevant UNDP/GEF projects.

Within SNC the Inventory of GHG emission for 2001-2005 was made for seven provinces and two major cities of the country. The Inventory includes emission of the following green house gases: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydro fluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF6). It is also included the precursor gases: carbon monoxide (CO), nitrogen oxides (NOx), non-methane volatile organic compounds (NMVOC) and sulfur oxides (Sox).

Since 2005 the inventory of GHG emission was not hold in the country and no further data on it was gathered and consolidated. The Third National Communication (TNC) is currently under development and within it the data on GHG emission is to be updated and reported.

KyrgyzHydromet regularly monitors the air temperature on one hundred fifty four stations. The network covers all provinces and major settlements of the country. However there is a problem with accurateness of data through considerable reduction of number of stations and data collected and reported by them within past twenty years.

KyrgyzHydromet regularly monitors atmospheric precipitations and reports data on them by major cities and provinces. There is the same problem with considerable reduction of the monitoring network and the atmospheric precipitations are monitored from thirty hydro met stations and there is no summing up of data on it at the national level. Some data on air temperature and atmospheric precipitations is available on the web-site of KyrgyzHydromet at www.meteo.ktnet.kg.

The NSoER 2006-2011, which is indicator-based report[66], provides data and information on climate change. The information on air temperature and atmospheric precipitations is based on

66 http://www.unece.org/fileadmin/DAM/env/europe/monitoring/Publications/Indicators_Assessment/documents/Publication.Indicators___Reporting._ECE-CEP-140_Eng_final.pdf

relevant data of the KyrgyzHydromet, which is provided on the base of the official requests from SAEPF.

Chapter on GHG emission is developed on relevant data and information of the SNC. There is an additional topic on natural weather hazards in the climate change chapter of the NSoER 2006-2011, which was added through high relevance of it for Kyrgyzstan.

The NSC does not work with climate change data and statistics yet. However, the situation is to be changed soon. There is the State programme on development of the national statistics for 2010-2014, which foresees improvement of the national environmental statistics in accordance with UNECE Guidance on environmental indicators for EECCA countries, including on climate change.

It is to be noticed that NGOs in Kyrgyzstan work on collection and distribution of data and the information on climate change. They develop publications on different aspects of the climate change. There is an informal network of NGOs – INFOCC, which unites the group of relevant experts and organizations and focuses on raising awareness on the international process of climate change mitigation and adaptation and on the relevant practical steps.

International organizations are also active in Kyrgyzstan in assessing climate change mitigation and adaptation and their often support activities of experts and NGOs involved in climate change assessments.

3.2.2.2. Review and analysis

The NSoER-2006-2011, SNC-2008 and the publication "Climate change in Kyrgyzstan: analysis of trends in impact and adaptation in Kara-Kulja district of the Osh Province"[67] (Trends in CC) published in 2012 were selected for review and analysis.

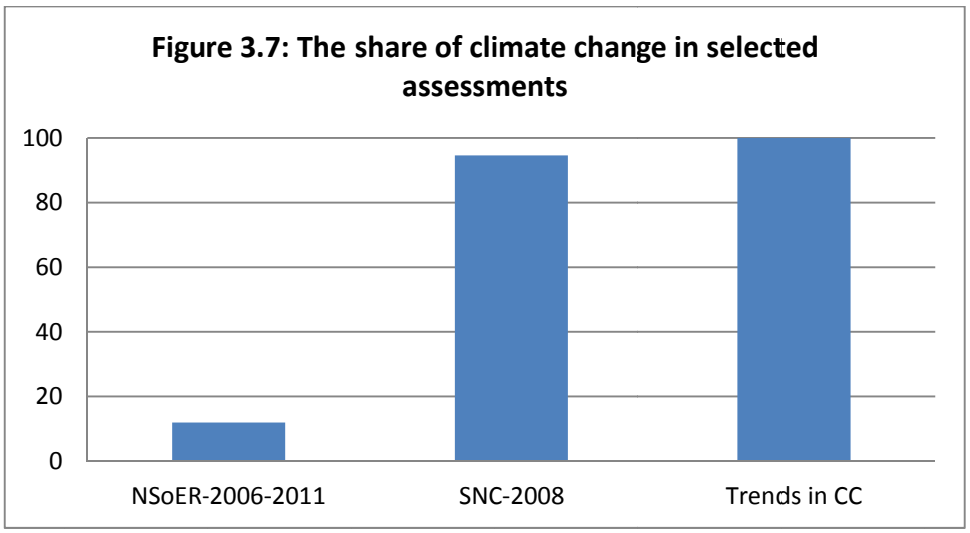
The last publication is published by the Public Foundation "MSDSPKG" in the official partnership with KyrgyzHydromet within the project on "Improvement of climate change adaptation related sustainability of mountain communities in Kyrgyzstan", which was funded by Aga Khan Foundation.

The official partnership with KyrgyzHydromet and use of official data of KyrgyzHydromet was the main reason to include this assessment for review and analysis. And the additional logic behind selection of Trends in CC was in inclusion of more specialised publication on the climate change features such as the trends in the air temperature and atmospheric precipitations.

It is also to be mentioned that the last publication does not cover the whole country, but it may show: - how the available data of KyrgyzHydromet is to be used for analysis of climate change in different scales within the country.

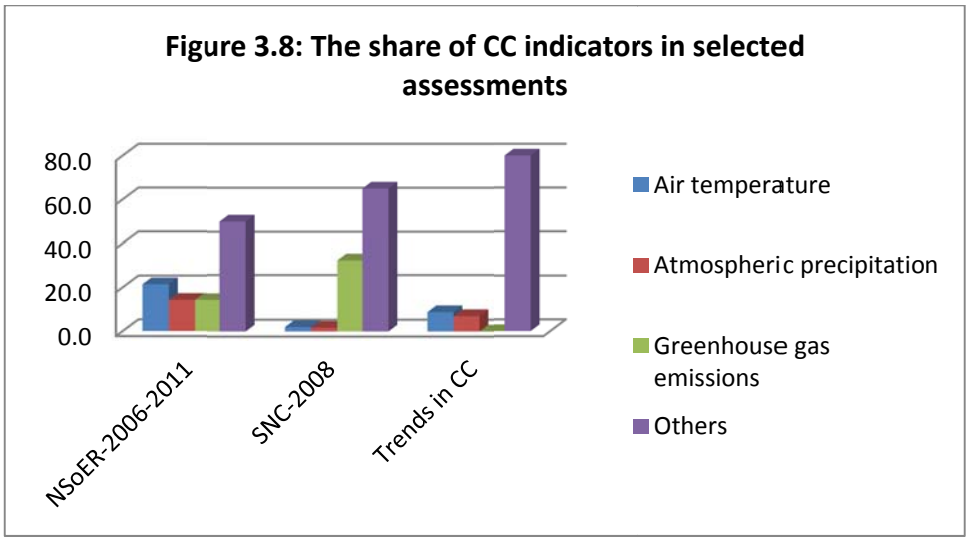
The share of the climate change in selected assessments is in Figure 3.7. The climate change makes 12% in NSoER 2006-2011, 94% in SNC and the Trends in CC is entirely on climate change.

[67] http://www.infoik.net.kg/images/files/cc_analysis_ru.pdf



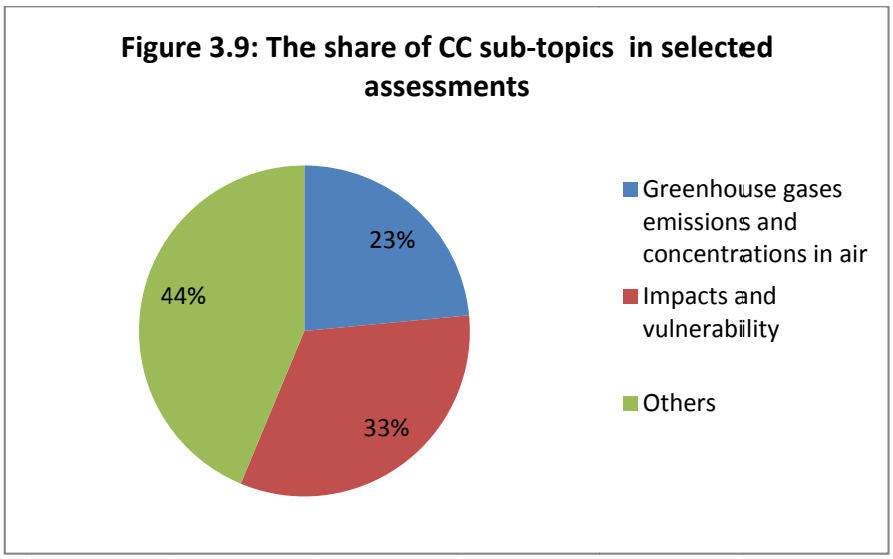
The share of the UNECE indicators on climate change is in Figure 3.8. NSoER -2006-2011 focuses by 50% on the UNECE set of indicators, including up to 20% on the air temperature, then up to 15% on the atmospheric precipitations and on GHG emissions each. The other 50% is shared evenly among distribution of the climate change within the country, natural hazards caused by climate change and other impacts of the climate change, such as on human health.

SNC, because of its scope, makes considerable focus on the GHG emissions (32%) among the UNECE climate change indicators, while air temperature and the atmospheric precipitations make less than 2% each. Meanwhile 64% of the SNC is on other climate change aspects or commitments toward its mitigation or adaptation to it.



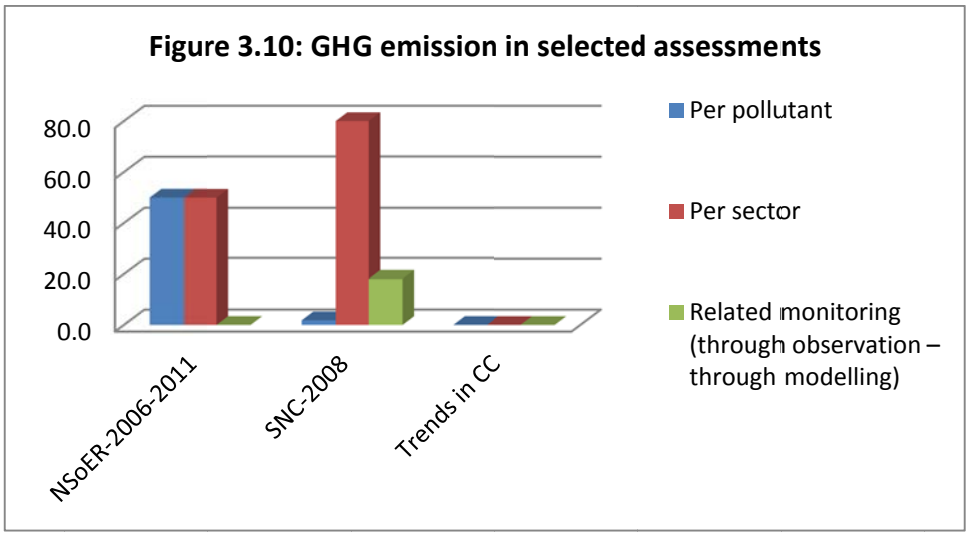
Trends in CC focuses on the air temperature and atmospheric precipitations by 9% and 7% respectively, while, in a view of its objectives and scope, does not make any focus on the GHG emissions. In more than eighty percent (84%) the publication is dedicated to the climate change impact, scenarios of change and adaptation measures.

As it is shown in Figure 3.9, sub-topics proposed by EEA covers a little more than half (56%) of the climate change in selected assessments.



The Figure 3.10 shows subjects of GHG emission in selected assessments. The NSoER 2006-2011 s focused evenly on GHG emission per pollutants and per sector (each 50%) and does not says anything on GHG emissions related monitoring.

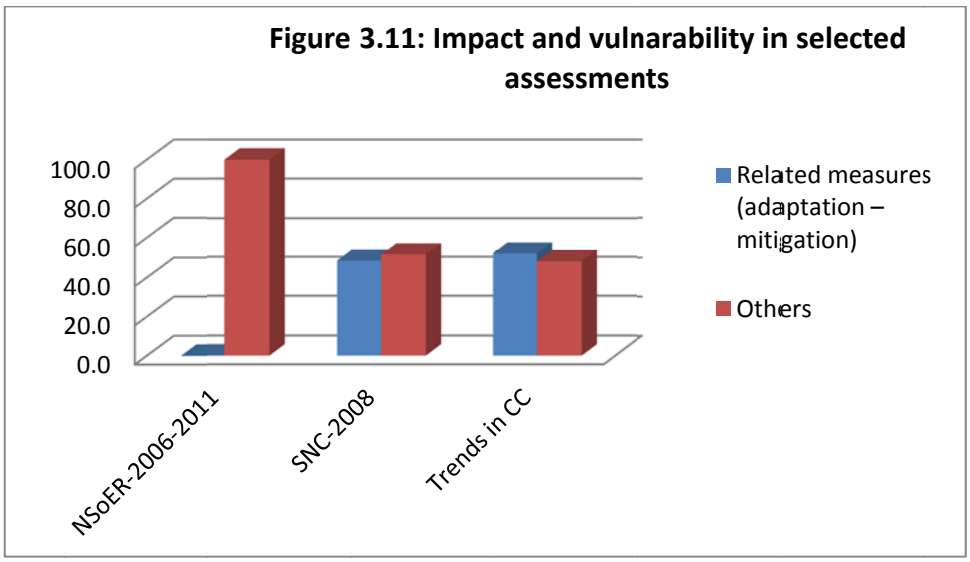
The SNC focuses mainly on per sector GHG emission (80%). Per pollutants' GHG emission makes less than 2%, meanwhile the related monitoring is shown close to twenty percent (18%). Related monitoring is reflected in SNC, since it was an objective to describe the state of monitoring and data collection and the methodology of estimation used. Trends in CC, due to the different objective, does not focus on GHG emission at all.



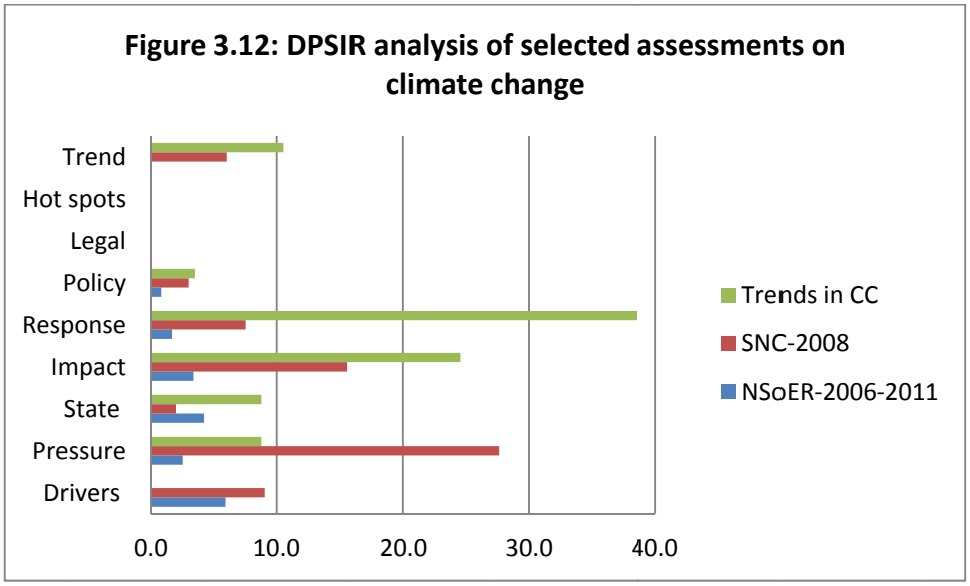
The impact and vulnerability, as it is shown on Figure 3.11, in NSoER-2006-2011 focuses on the state of the impact and the vulnerability through describing natural hazards, caused by climate change and then on some aspects of its impact, but not on related either mitigation or adaptation measures.

SNC is evenly focused on the mitigation and adaptation (50%) as of related measures and under others (50%) it is dedicated to the state of impact, risks and vulnerability to climate change.

Trends in CC, as it is focused on the adaptation to climate change, assess the state of impact (48%) and the related adaptation measures (52%).



NSoER 2006-2011 in DPSIR analysis (Figure 3.12), when entire assessment is reviewed, considers drivers (8%) for which the energy, transport and wastes chapters are analysed, the pressure, state, impact, response and policy prevailingly in the descending order.



SNC maximally focuses on climate change related pressure (28%) through the inventory of GHG emissions and through the national circumstances, describing the economy of the country, presents "drivers" (9%). It does not focus much on the climate change related state, but well considers the impact of the climate change (16%). It also proposes mitigation and adaptation response measures (8%). The SNC, due to its objectives, considers climate change related trends (11%).

Trends on CC as a special publication, analysing the climate change effects and proposing the adaptation measures, considerably focuses on the impact (25%) and on proposed response measures (38%). While assessing the climate change it stronger focuses on climate change trends (12%) comparing to the state of climate change (8%) and the pressure causing it (8%).

3.2.3. Biodiversity

3.2.3.1. Overview of the reporting

The SAEPF is responsible for reporting to several MEAs on biodiversity (Annex 3, Table 2), including on:

- The Convention on Biological Diversity (UNCBD);
- The Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitats;
- The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES);
- The Cartagena Protocol on Biosafety under UNCBD.

Except CITES, other reports are assessment type reports, however part of them are fulfilling the special templates and questionnaires.

The Forth National Report to UNCBD (2008)[68], National Report to Ramsar Convention (2012) and NSoER2006-2011 are the reports on the base of which the reporting on biodiversity is to be overviewed here.

Reports are prepared in accordance with approved format of the respective conventions. The process of data and information gathering is based on the written requests to the responsible authorities and entities.

Within the responsible organization the data and information to be submitted is usually subject to discussion, data analysis and summarizing through round tables or circulation draft documents amongst the stakeholders.

The 4th National Report to UNCBD was done under relevant project funded by UNDP. Expert work on data and information gathering is usually crucial for development of reports.

Statistical reporting made by NSC is an important data source for reporting on biodiversity in the country. NSC collects statistical reports from the Hunting Department of SAEPF and hunting entities on number of species, their habitats, on measures to protect species on their territories.

NSC also collects reports from the Forestry entities on the expenses to protect forests and species, on the state of forest lands and their use. The third form of the statistic reports collected by NSC is from the administrations of protected areas on protected species and their habitats. Relevant statistics are available on the website of NSC.

NSoERs are the assessments for which the data and information from the NSC and all other responsible agencies and entities is collected and reported.

The national statistics and reports on the progress of achieving Millennium Development Goals include information on protected areas as well.

International projects implemented by Food and Agriculture Organisation of UN (FAO), World Bank (WB) produce assessments on the biodiversity, including forest resources.

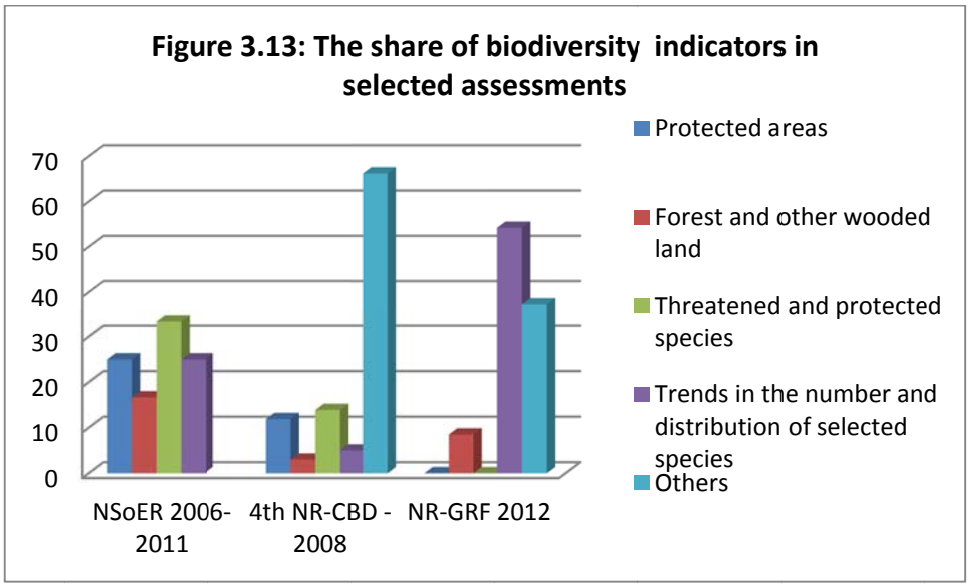
[68] http://www.cbd.int/doc/world/kg/kg-nr-04-en.pdf

3.2.3.2. Review and analysis

For the purposes of review and analysis the NSoER-2006-2011, 4th National Report to UNCBD (NR CBD-2008) and the National Report on the state of genetic resources of forests (NR GRF-2012)[69] published in 2012 within activities of FAO in Kyrgyzstan were selected.

In NSoER 2006-2011 the biodiversity makes twelve pages and 6,12 % of its total volume. NR-CBD-2008 and NR-GRF are fully dedicated to the biodiversity.

The share of UNECE indicators on biodiversity is in Figure 3.13. It shows that NSoER 2006-2011 are fully focused on the UNECE indicators and considers them at the rate from 17% to 33%. The most focused are threatened and protected species and less focused are Forest and other wooded lands.



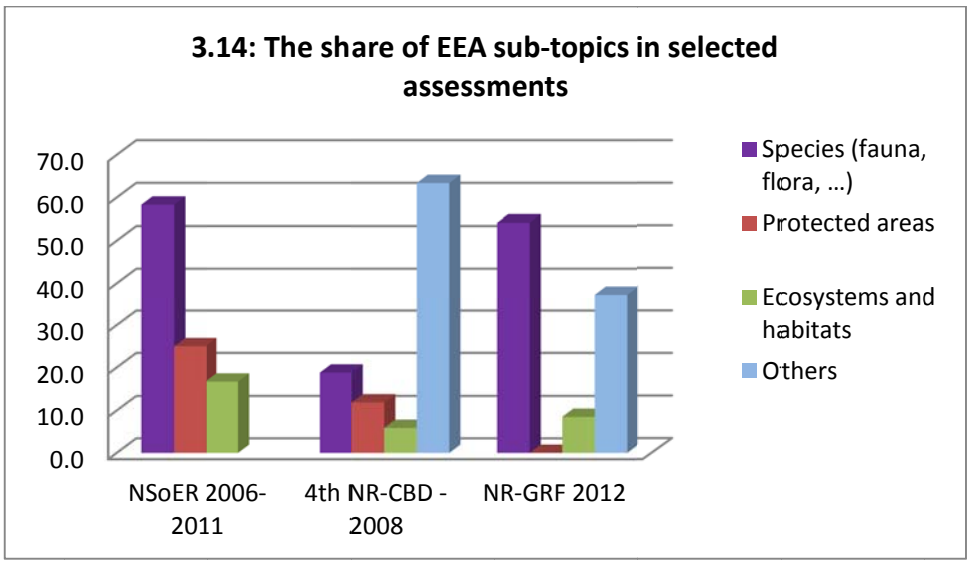
The 4th NR-CBD-2008 shows UNECE indicators at comparably low level and mostly focuses on other aspects of biodiversity protection and management (66%). However in number of pages it provides plenty of information on each of indicators.

The NR-GRF-2012, due to its scope, focuses on numbers of productive and mostly wooden species and their distribution (54%). Forests and wooded land makes 8% of it and for more than thirty five percent it considers other aspects of genetic resources of forests.

As for the EEA sub-topics such as protected species and areas, ecosystems and habitats (Figure 3.14) the NSoER-2006-2011 within its twelve pages on biodiversity gives priority to protected species (58%), then to protected areas (25%) and the last to ecosystems and habitats (17%).

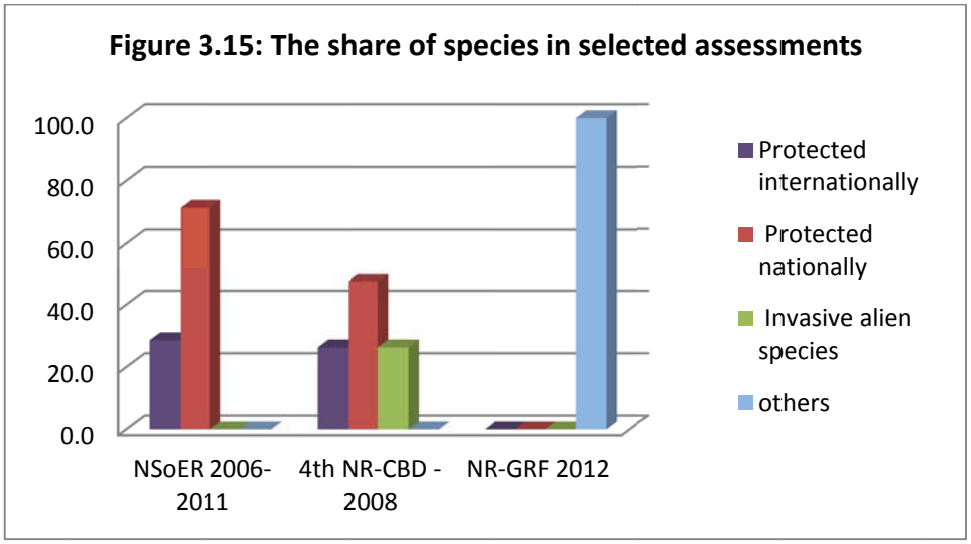
Description and data on species is the leading sub-topic (19%) in 4th NR-CBD-2008. Protected areas and then ecosystems and habitats make 12% and 6% respectively. In spite of it, this assessment is well focused on ecosystems and habitats, which are well describing the state of ecosystems and objectives toward protection of ecosystems in six pages dedicated to them. In the meantime, the most of the assessment (63%) is dedicated to other aspects of biodiversity protection and management, including policy measures, international cooperation, international projects and others.

[69] http://www.nature.kg/images/files/ndgenles.pdf



NR-GRF – 2012 is a special publication, which is focused on species as genetic resources of forests and therefore the species make more than fifty percent in this assessment. Overall description of forests and their existing state is presented in Figure 3.14 as ecosystems and habitats (8%). More than thirty five percent of the assessment is about management aspects of the genetic resources, relevant cooperation and capacity building, policy and legal measures.

As for the subjects under the sub-topics provided by EEA, the share of species, considered as protected internationally and nationally, invasive and alien are in Figure 3.15.



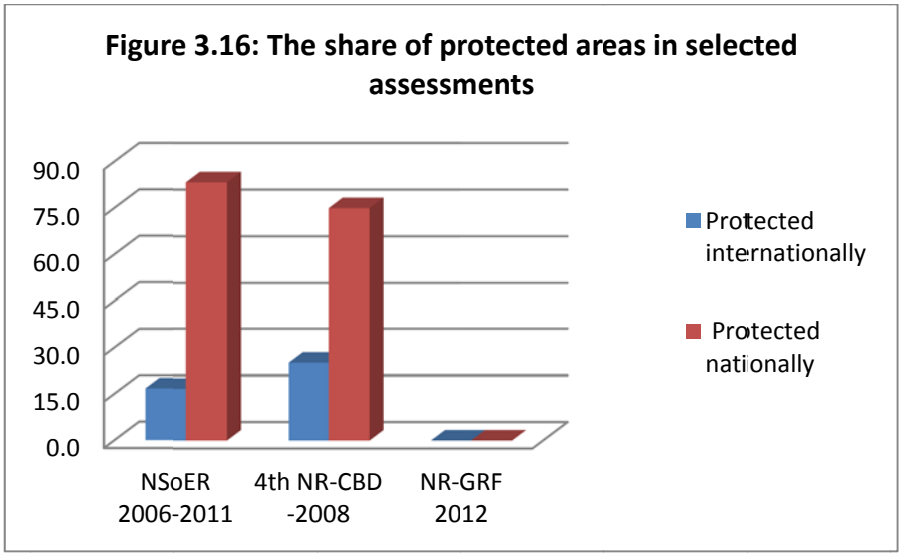
The NSoER-2006-2011 focuses only on the species either protected internationally (29%) or nationally (71%) and it makes no focus on invasive alien species.

4th NR-CBD-2008 by 25% considers species protected internationally and invasive alien species and makes stronger focus on the species protected nationally (50%).

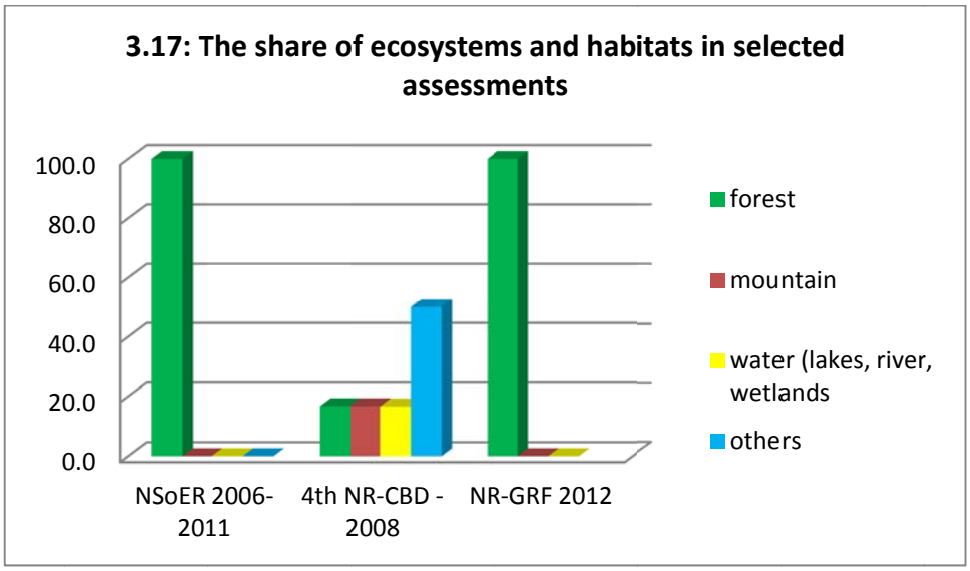
NR-GRF-2012 is well focused on species, but neither on protected species nor on invasive alien species. It considers only wooded species for their productivity, genetic value and capacity.

Protected areas are considered in NSoER-2006-2011 and 4th NR-CBD-2008 and they are not covered by NR-GRF-2012 (Figure 3.16). Internationally protected areas make 15% and 20% in

NSoER-2006-2011 and 4th NR-CBD-2008 respectively and protected nationally are considered at much higher level both in NSoER-2006-2011(80%) and 4th NR-CBD-2008 (70%).

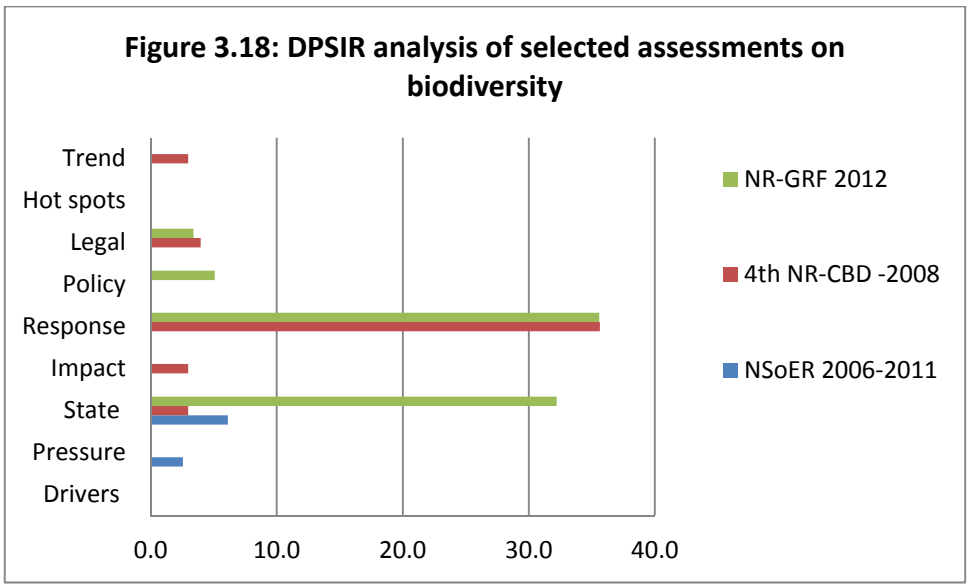


As for ecosystems and habitats (Figure 3.17), the NSoER-2006-2011 is fully focused on forest ecosystems (100%) through presenting the UNECE indicator on forests and other wooded lands. However, NSoER-2006-2012 does not use the term of ecosystem yet.



4th NR-CBD well prioritises ecosystems and habitats and it presents the state of forest, mountain and water ecosystems in the country (16,6% each) and it puts objectives toward assessing ecosystems and their management internationally and nationally (50%). NR-GRF-2012 describes the state of forests and forested land (100%), which is counted under relevant forest ecosystems here.

The NSoER 2006-2011observes biodiversity related pressure and its state, as it is shown in Figure 3.18, which presents DPSIR analyses of selected assessments on biodiversity. Through considering chapters on agriculture and land use it was possible find some aspects of the pressure on biodiversity (2,5%) and the biodiversity chapter itself entirely was considered as the state of the biodiversity (6,1%).



4th NR-CBD-2008 makes very strong focus on response measures toward biodiversity conservation (36%) and it also considers the state and the impact at much lower rate (3%), while considering some biodiversity related trends (3%) and legal measures (4%).

The NR-GRF 2012 considers biodiversity related response measures at highest rate (36%) and also pays considerable attention to the state of species and genetic resources (33%). It also considers at some rate the policy (5%) and legal measures (4%) toward management of genetic resources of forests in Kyrgyzstan.

3.2.4. Wastes

3.2.4.1. Overview of the reporting

The main institutions those collect data on wastes and their management are:

- the NSC - reporting on toxic waste, household waste, liquid waste;
- the Ministry of Emergency Situations (MES) - reporting on the state of radioactive tailings and toxic waste;
- the SAEPF - NSoERs, reporting to MEAs, policy formulation, legal acts;
- the Ministry of Health - utilisation of medical wastes;
- the Ministry of Agriculture - control over the import and use of obsolete pesticides and banned POPs in agriculture and relevant reporting;
- the Ministry of Energy - control over the use and utilisation of PCBs in the sector and relevant reporting;
- local authorities - solid wastes handling and reporting to NSC.

Kyrgyzstan is a party to Basel, Rotterdam, and Stockholm Conventions (Annex 3, Table 2.1). SAEPF develops reports to the Basel Convention on transboundary movement of hazardous wastes and their disposal. Reports were submitted in 2009, 2010 and 2011 and were posted on the website of the Secretariat of the Convention (http://www.basel.int).

In NSoER -2006-2011, the chapter "Waste" is based on statistical data from NSC, data and information collected from MES, MAM and selected municipalities and entities.

The NSC collects and processes information on solid and hazardous wastes. The methodology of data collection and reporting is gradually improving from the reporting used in Soviet time to the significant changes through improved waste classification, made for meeting requirements of the Basel Convention and regular integration of recommendations by UNECE, EuroStat. In the meantime, there are still considerable needs to improve reporting on the quantity and density of the waste, waste flow, separated waste disposal, wastes recycling and etc.

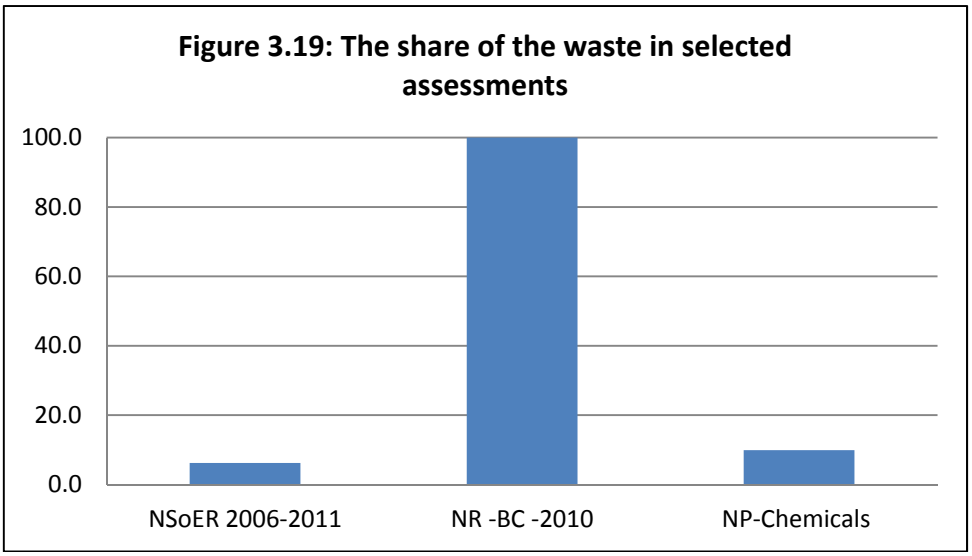
There is a data gathering and reporting on hazardous wastes in the country, on the base of which the NSC collects data from relevant entities. No statistics on radioactive waste in Kyrgyzstan yet. Officially published waste statistics are very limited. The Statistical Yearbook of Kyrgyzstan 2006-2010, includes only one table with very limited waste statistics.

There are number of ODA funded projects on waste management in Kyrgyzstan, including on the improvement of waste data gathering and reporting. The chemical profile of the country was prepared with the support of UNDP. It reflects not only hazardous production, but it also describes hazardous waste. However its approval by relevant authorities is still pending.

3.2.4.2. Review and analysis

For the review and analysis of assessments on wastes the NSoER-2006-2011, National Report to Basel Convention for 2010 (NR-BC-2010) and the Chemical Profile of Kyrgyzstan (NP-Chemicals) were selected.

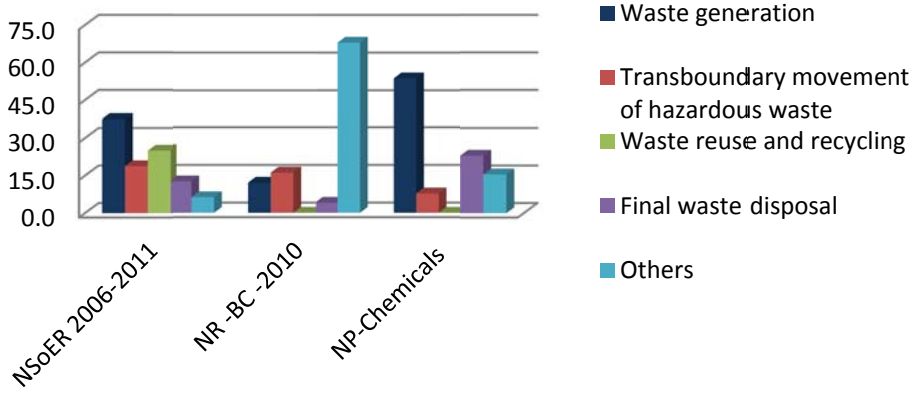
It was mentioned above that NP-Chemicals is not approved yet by relevant national authorities, but it was selected here because of absence of options. In spite of bearing responsibility to provide data and information on wastes, the NSC does not publish much about wastes and it was found impossible to review and analyse here the statistical publications after 2008.



The share of the waste in NSoER-2006-2010 is 6% and in NP Chemicals is 10%. The NR-BC-2010 is considered entirely on wastes (Figure 3.19).

All four UNECE indicators on wastes are present in NSoER -2006-2011 (Figure 3.20). Since there is a series problem with radioactive wastes in Kyrgyzstan, an additional indicator on radioactive wastes was included in NSoER -2006-2011.

Figure 3.20: The share of indicators on wastes in selected assessments

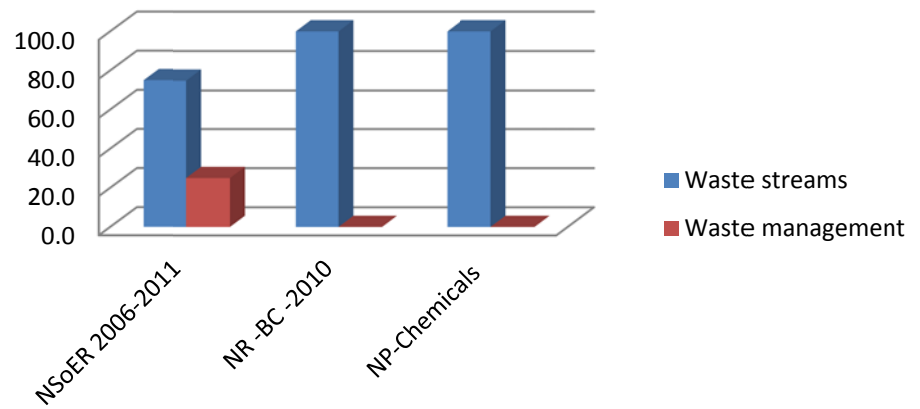


NR-BC-2010 considers UNECE indicators, but does not prioritise them much. Among UNECE indicators, it focuses on transboundary movement of hazardous waste (15%) and on waste generation (10%).

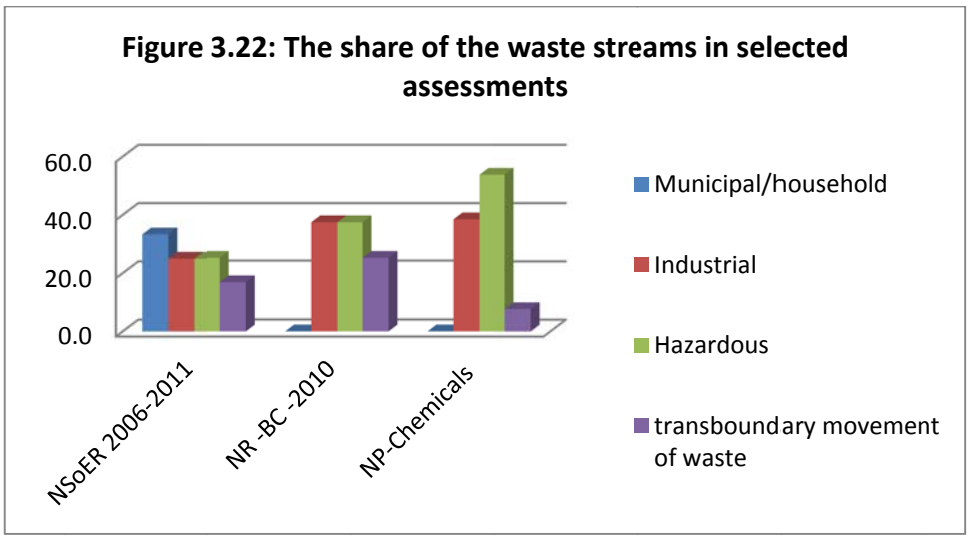
NP-Chemicals focuses on industrial and hazardous waste generation (50%) and considers their disposal (20%) among UNECE indicators.

The share of sub-topics provided by EEA is in Figure 3.21 and among two of them, selected assessments prevailingly consider waste streams and only in NSoER-2006-2011 up to 20% focus waste management.

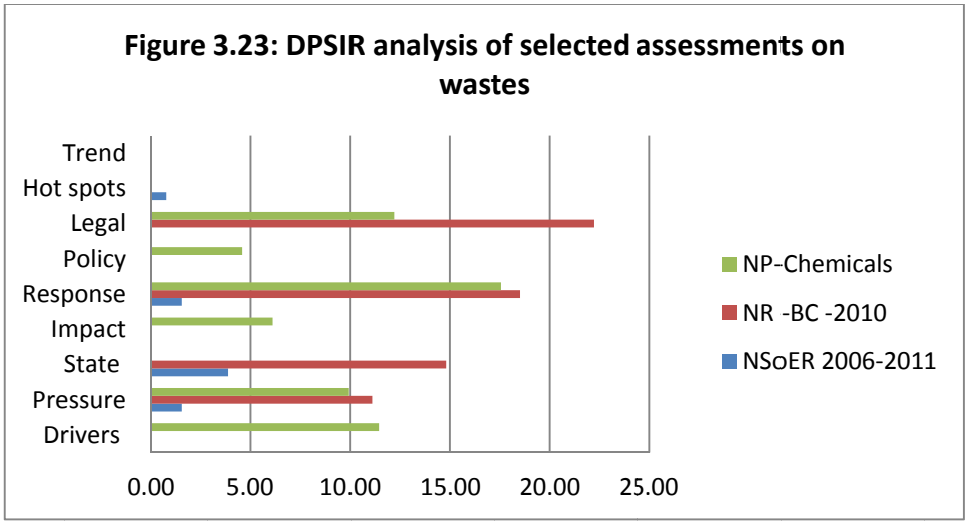
Figure 3.21: The share of EEA sub-topics on wastes in selected assessments



The waste management in NSoER-2006-2011 is evenly distributed among four proposed subjects (municipal/household, industrial, hazardous and its transboundary movement). Because of that and since waste management is considered only in NSoER-2006-2011, there is no figure, showing it in this AoA.



Distribution of the waste stream in selected assessments is in Figure 3.22. The NSoER-2006-2011 considers all four subjects with stronger focus on municipal/household waste (33%), while NR-BC-2010 and NP-Chemicals make stronger focus on industrial and hazardous wastes. NR-BC-2010 in a view of its objectives for more than 25% considers wastes' transboundary movement.



DPSIR analysis of selected assessments on wastes is in Figure 3.23. The NSoER-2006-2011 shows the state, pressure and hot spots in its chapter on wastes, while some relevance to waste relevant response measures are found in the chapter on the state of the environmental management.

NR-BC-2010 considers most of DPSIR components with stronger focus on legal and response measures as it is required by reporting template. It is also shows the state and pressure related to the hazardous waste and its transboundary movement.

NP-Chemicals, considering country conditions with overall management of chemicals, focuses on drivers, pressure and impact as well as prioritises consideration of response and legal condition toward hazardous waste management in Kyrgyzstan.

4. MESSAGES

The data and information flow and the environmental reporting in Kazakhstan and Kyrgyzstan have both common features and differences. To consider them through assessed process of data and information gathering and environmental reporting in the assessed thematic areas is an objective of this chapter.

Through this AoA it was also an attempt to assess the level of relevance of the environmental data and information flow and of the environmental reporting against the relevant guidelines developed by UNECE as well as their relevance for development of SEIS in the Pan-European region as it was committed by environmental ministers at their Seventh Ministerial Conference in Astana in 2011. Review and analysis of NSoERs, statistical publications, reports to MEAs was made for these purposes in this AoA.

4.1. KEY FEATURES OF ENVIRONMENTAL DATA AND INFORMATION AND ENVIRONMENTAL STATISTICS IN COMPARISON

There is a process and established practises of the environmental data and information gathering for reporting to MEAs and NSoERs in Kazakhstan, which is led by MoEP and in which the ASK and several other agencies and institutions play an important role.

Majority of environmental assessments benefit from relevant statistical publications of ASK and publications of data of KazHydromet, those openly accessible for developers of assessments. It is to be noted that both ASK and KazHydromet are visibly progressing in data collection and its publications. KazHydromet increases the number of its monitoring stations on the account of the nationally funded programmes on improvement of the environmental monitoring. The data and information, which are not available through above sources, are collected on official requests from various national agencies and institutions.

Thematic data bases on biodiversity and ecosystems, thus foreseen for development under IAC MoEP as key components of NFEI are not well developed, structured and easily accessible yet, in spite of relevant resolution of the Government dated September 25, 2000.

Publications of statistical yearbooks – EPSD 2007-2011, publication of IBSE by KazHydromet are regular process of data collection, aggregation and their publication. NIR on GHG for UNFCCC, produced under relevant resolution of the Government of Kazakhstan is also newly established regular process of data collection, aggregation and estimations on GHG.

Some environmental assessments in Kazakhstan such as SNC are developed in project format under relevant ODA funds and along with above mentioned nationally established practices use project based activities of experts, who work on collection and aggregation of data for assessments. Project basis features development of some nationally funded reports to MEAs and it was the case with development of NsoERs till 2011 as well.

This AoA, through review and analysis of assessments in proposed thematic areas has discovered limitations in data and information for fulfilling reporting requirements and in their relevance to UNECE indicators, EEA subtopics. These limitations concern both quantity and

quality of data and information and may show the way for further improvement and development.

It is also to be carefully analysed, which way is more efficient and cost effective, either to establish the regular system based data gathering and reporting or continue periodic project formatted way of data collecting and reporting to MEAs.

The last statement fully concerns Kyrgyzstan, which is more depended of ODA funded projects for development of environmental assessments than Kazakhstan.

There are also two principal processes of data and information collection for NSoER and reports to MEAs in Kyrgyzstan: (i) national environmental statistics by NSC and data from regular monitoring by KyrgyzHydromet and (II) project based data collection on official requests to relevant national agencies and institutions, work of experts on data collection and aggregation for reports to MEAs and NSoER.

The data and information collected through these processes do not meet all reporting requirements neither for NSoERs nor for most of reports to MEAs. It is because the environmental monitoring network of KyrgyzHydromet is rather limited and covers only some parts of the country and consequently, limited data obtained from regular observations does not meet reporting requirements. Statistical reports by NSC on emissions of GHG and air polluters, biodiversity, water and wastes are limited very much too.

Though, availability of the environmental data and information is an issue for Kyrgyzstan. There is no much difference in available and accessible data and information. Usually, what is available and exists is accessible. There is a need in considerable improvement of environmental data and information availability. Some good practices in Kazakhstan with publications of the national environmental statistics and environmental monitoring data could be learned and if applicable to be used in Kyrgyzstan.

Being less income country than Kazakhstan, Kyrgyzstan most probably will longer relay on ODA for fulfilling its reporting obligations to MEAs. Therefore, for development of reliable reports, considerable efforts on improvement of the statistical reporting and reporting of environmental monitoring data and their accessibility are to be foreseen both through nationally and donor funded programs.

Strong attention is to be paid to the consistency of the environmental data and information. Existing practice of project based development of assessments, within which the most of time and resources are spent for gathering of needed basic data and information is inefficient and to be changed.

There is a positive development toward future NSoERs in Kyrgyzstan. There was adopted the Resolution of the Government approving NSoER 2006-2011 and providing their future three-year periodicity and identifying the source of their regular national funding. It makes that NSoERs in Kyrgyzstan is to be a regular process.

Usual practice shows that the basic data and information for previous reports only kept individually by experts, involved in their development and there is no any governmental institution storing basic data and information of pervious NSoERs and reports to MEAs for the purposes of needed update and use in future reports. SEIS relevant activities in Kyrgyzstan can focus on development of singular or joint interagency data base of reports to MEAs, NSoERs and their basic data and information.

4.2. RELEVANSE TO UNECE INDICATORS, EEA SUBTOPICS AND DPSIR FRAMEWORK

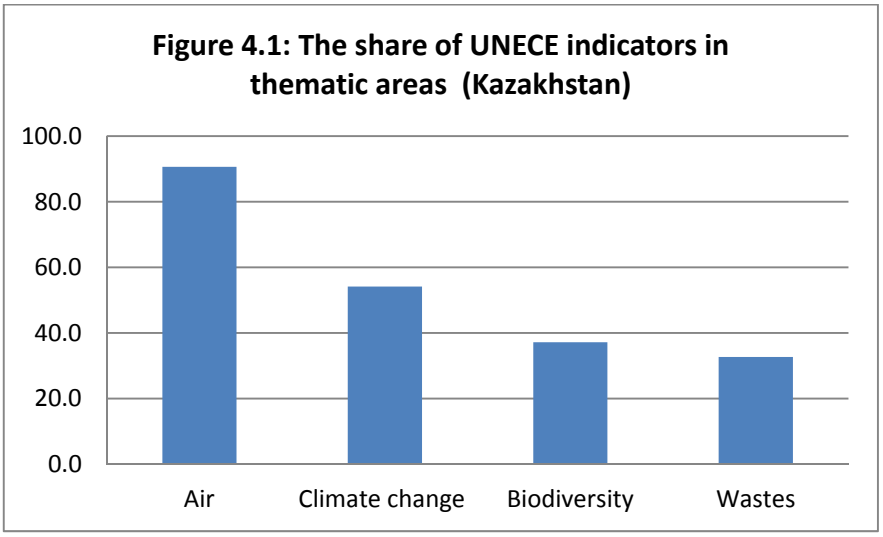
Apart from the detailed review and analysis of assessments in each of thematic areas in the previous chapter, here is the analysis of relevance of the whole thematic area to the UNECE environmental indicators, to subtopics and subjects proposed by EEA and to the EEA DPSIR framework[70]. It is done to make a message on relevance or irrelevance to these items, which is important through the prism of the Pan–European cooperation in the field of environment, including perspectives of promotion of SEIS to implement decisions of Astana 2011.

4.2.1. Kazakhstan

There were only seven assessments on Kazakhstan used for review and analyses of thematic areas in this AoA. NSoER-2010 was used for analysis of all four thematic areas and the statistical yearbook - EPSD -2007-2011 was used for analysis of three of four thematic areas, except climate change.

NSoER-2010 in its introduction refers to the use of the UNECE Guidelines for the Preparation of Indicator-Based Environment Assessment Reports in EECCA countries[71]. However, it should be mentioned that NSoER-2010 as well as previous NSoERs for 2006-2009 only in their Content observe titles of recommended indicators, but not exactly follow the UNECE Guidelines. Other than UNECE indicators, NSoER-2010 also considers other topics under considered thematic areas.

Then, EPSD 2007-2011[72] also in its introduction refers to the use of thirty two of thirty six UNECE environmental indicators for EECCA countries. Other considered assessments are not designed to follow either UNECE recommendations on indicator based reporting or UNECE environmental indicators.



[70] http://ia2dec.ew.eea.europa.eu/knowledge_base/Frameworks/doc101182/

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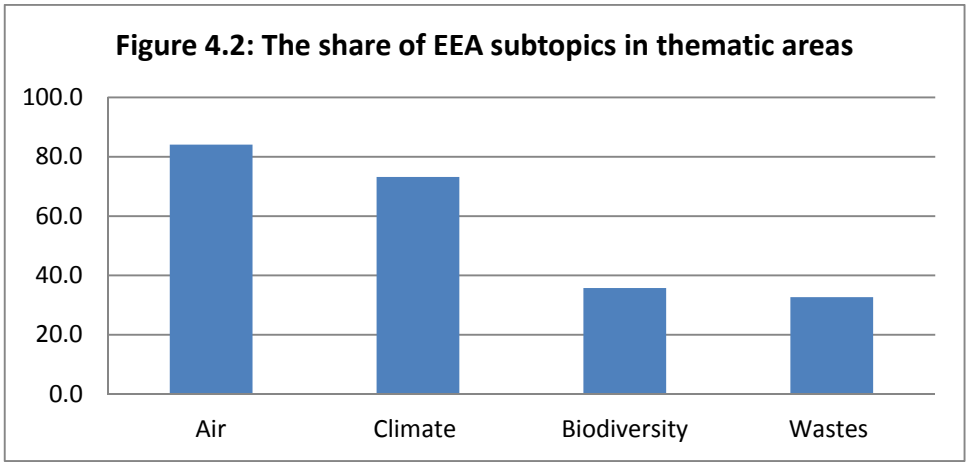
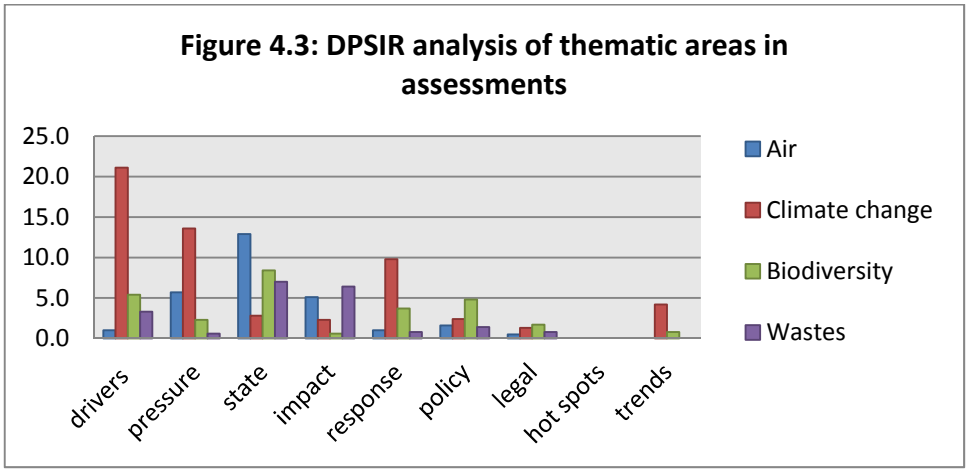
In a view of the above stated, Figure 4.1, aims to show overall relevance of all country assessments covering thematic areas to the UNECE set of indicators. Biodiversity and wastes are areas for which both NSoER-2010 and EPSD 2007-2011 were reviewed and analysed, providing two-third of assessments with declared use of relevant UNECE Guidelines. Very low relevance of these areas to the UNECE environmental indicators is the result of absence/unavailability of needed data and information.

Comparison with the set of sub-topics proposed by EEA (Figure 4.2.) observes similar with Figure 4.1 tendency, which, in one hand, may prove overall coherence of the UNECE set of environmental indicators with EEA prioritisation in considered thematic areas and in the other hand, obviously shows even lower relevance of the national assessments in Kazakhstan to EEA priorities in considered thematic areas, comparing with the UNECE environmental indicators.



In the Central Asian component of EE-AoA it was mentioned that most of national assessments on water observe DPSIR framework, but they are focused much on the pressure (withdrawing and polluting water), state and impact and they do not consider much economic activities (drivers) and responses[73].

Above is one of the reasons to consider DPSIR observance and distribution of its components in considered thematic areas (Figure 4.3). Another reason is to use the opportunity to check DPSIR observance in only three selected assessments per thematic area, among which the NSoER 2010 in its introduction declares the use of DPSIR.



[73] Europe's Environment – Central Asia – An Assessment of Assessments, CAREC, 2011, pg 42.

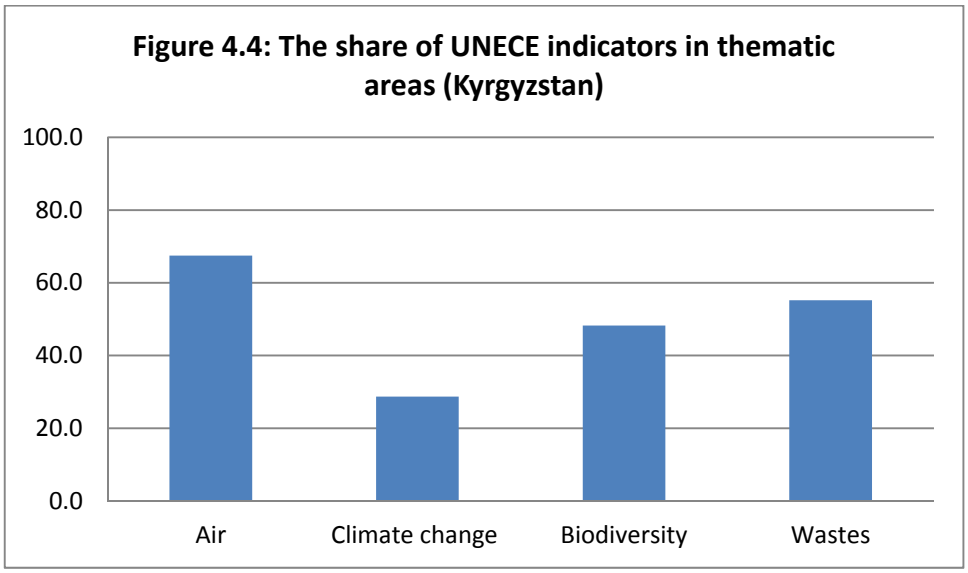
Among thematic areas, assessments on climate change better present related drivers, pressures and responses. Assessments in remaining thematic areas are focusing much on the state and impact analyses. The message is to be received through above stated is the assessments especially on air, biodiversity and waste in the future are to be focused much on drivers and pressure for applying adequate response, policy and legal measures.

4.2.2. Kyrgyzstan

There were nine assessments used for review and analysis of thematic areas on Kyrgyzstan. Seven of these nine assessments were produced within ODA funded projects. NSoER 2006-2011 was only the assessment reviewed and analysed in all four thematic areas. The statistical yearbook "Kyrgyzstan in Figures 2006-2010" was reviewed only once in the sub-chapter on the air.

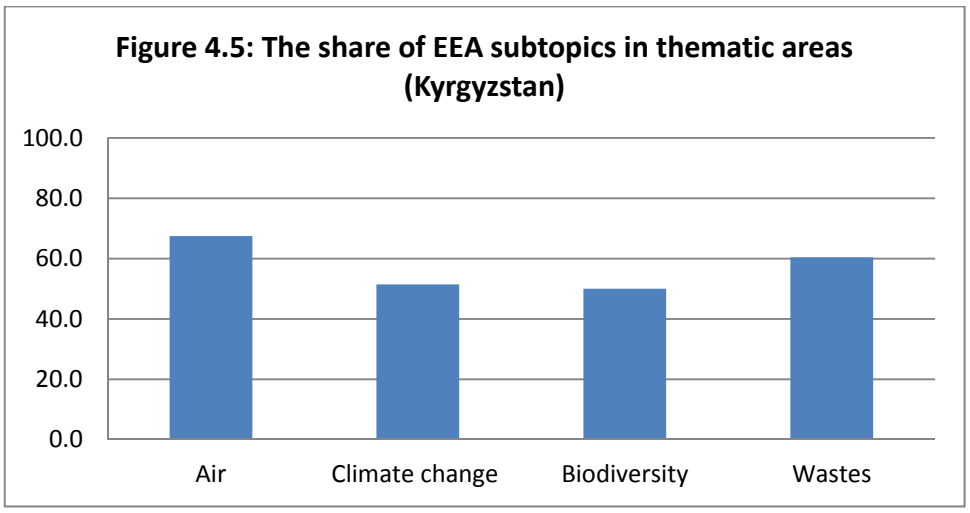
NSoER 2006-2011 is indicator - based report, which is developed in use of the relevant UNECE Guidelines[74]. Other assessments were developed in use of own terms of references either under reporting requirements to MEAs or specific requirement of projects within which they were developed.

Therefore, in the quantity of assessments observing UNECE environmental indicators, Kyrgyzstan has some disadvantage comparing to Kazakhstan, which managed to regularly publish statistical yearbooks on environmental protection and sustainable development in use of the UNECE set of indicators.



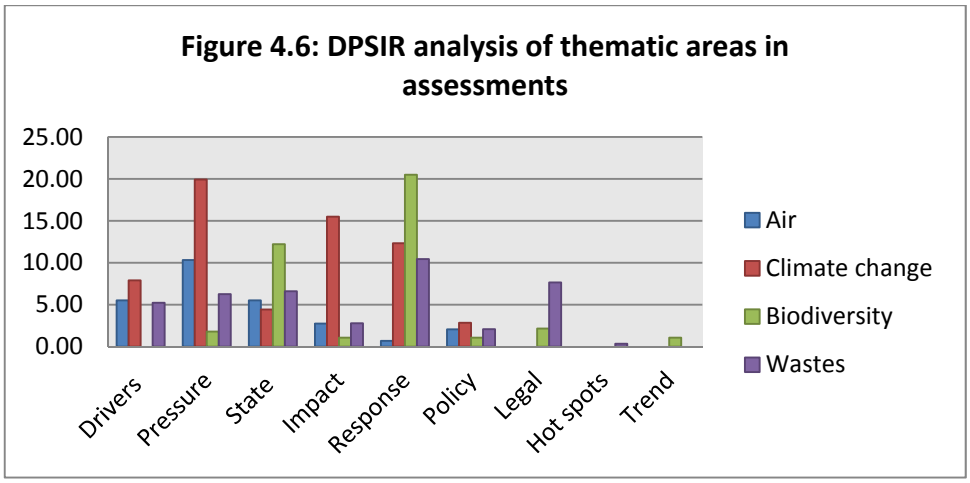
Climate change shows lowest relevance to UNECE indicators (Figure 4.4.). Even in NSoER, which was developed in use of the UNECE Guidelines, Kyrgyzstan has introduced own indicator on climate caused natural hazards and pays to it considerable attention. Climatic assessments in Kyrgyzstan make lower focus on GHG emission, which was the major reason of high relevance of assessments in Kazakhstan to UNECE indicators because of the NIR on GHG, which is not produced in Kyrgyzstan.

74 http://www.unece.org/fileadmin/DAM/env/europe/monitoring/Publications/Indicators_Assessment/documents/Publication.Indicators___Reporting._ECE-CEP-140_Eng_final.pdf



The share of EEA subtopics in considered thematic areas close to or a little higher than fifty percent each (Figure 4.5.). Following the observation made with Kazakhstan, where UNECE set of indicators and EEA sub-topics have shown almost the same rate and the shape of relevance, it is to be explained that higher relevance of climate change to EEA sub-topics in climatic assessments on Kyrgyzstan comes because of extended consideration of climate change adaptation measures in one of the assessments.

Considerably low relevance of assessments in Kyrgyzstan to both UNECE indicators and to EEA subtopics is to be explained not only by the different scope of assessments, but also by unavailability of relevant data and information for producing of NSoER and several other assessments, including reports to MEAs.



The DPSIR framework is observed in deferent composition for considered thematic areas (Figure 4.6.). Pressure on the environment, its state and response measures are most observed in aggregated consideration of assessments on Kyrgyzstan.

Comparing to Kazakhstan, assessments in Kyrgyzstan do not focus much on drivers, which may limit deeper analysis of causes of the pressure on environment. Strong focus on response measures of assessments on biodiversity and climate change comes from the specificity of considered publications on sustainable use of genetic resources of forests and climate change adaptations measures respectively.

NSoER 2006-2011 in Kyrgyzstan as well as NSoER 2010 in Kazakhstan are not among well DPSIR observing assessments. SNC in both countries are most balanced assessments toward observance of the DPSIR framework.

4.3. RECOMMENDATIONS

The final document of current AoA was discussed with appointed focal point from MoEP and SAEPF, other stakeholders - members of working groups on SEIS in Kazakhstan and Kyrgyzstan, who took part at the national consultations in Kazakhstan, held on September 26 and in Kyrgyzstan on September 30, 2013.

The objective of meetings was to discuss country specific activities for addressing major needs, including those found in current AoA, in the field of the environmental data and information within the environmental monitoring component (MONECA) of the EU project for Central Asia on Forest and Biodiversity Governance including environmental monitoring (FLERMONECA) to be implemented in 2013-2015 with the focus to promote SEIS in Central Asia in cooperatiion with EEA.

Bellow recommendations are the result of above consultations and major AoA findings through considered practices of the environmental data and information gathering for the purposes of reporting to MEAs in respective thematic areas, NSoERs and major environmental statistic publications.

Common recommendation from both countries is to continue exercising AoA as it is useful for assessing the state of the whole reporting process in various thematic areas at the national level and reliable tool of comparing these processes between countries and also its interfacing with agreed Pan-European reporting commitments, guidelines and recommendations.

Both countries, since inter-agency collaboration was found still weak very much and was one of the reasons of ineffective environmental data and information exchange for reporting purposes, support establishment of interagency working groups on SEIS and welcomes substantial support of their activities, including through the MONECA.

4.3.1. Kazakhstan

For the purposes of improved and regular data and information supply to MEAs' reports and NSoERs to use opportunities through relevant national programmes, Pan-European cooperation processes, ODA projects, including through the MONECA to:

- Further improve national statistics on environmental protection and sustainable development, which is built in use of the UNECE set of environmental indicators for EECCA countries. Namely, to request relevant institutions in the Pan-European region to assist methodically the ASK in improvement of production of indicator-based statistics;
- Request relevant international institutions to assist methodically ASK in development of the set of green economy indicators;
- Assist IAC EP in the establishment of the regular data and information supply to the digital data bases of nature resources under the NFEI – potentially the major source of data and information for reporting to MEAs on biodiversity, land use and desertification;
- Revive development of NSoERs, for which to request relevant institutions in the Pan-European region to assist methodically. It is recommended to developers of new NSoER in Kazakhstan to consider an opportunity to develop a summary type two-three year

indicator-based NSoER (up to 60-80 pages), which will more closely follow the relevant UNECE Guidance and may give more comprehensive and concise picture on the state of environment for further decision making and interfacing with the environmental protection in the Pan-European region;
- Assist in holding special trainings on PRTR for experts in MOEP, enterprises and NGO, which will add on to the capacity to improve data and information on emissions of GHG and air polluters.

In considered thematic areas, based on major finding of current AoA it is recommended:

- In a view of very limited data and information on **air** pollution by sectors, by related monitoring and by impact for NSoERs, to explore opportunities to improve and harmonise relevant reporting within CERC MoEP and its reporting to ASK;
- Future NSoER can considerably benefit from new NIR GHG (2013) in more balanced presentation of per pollutants and per sector GHG emissions in its chapters on **climate change,** which was not the case with existing NsoER-2010. Since most of assessments on climate change do not consider emissions per related monitoring (through observation or modelling), it is recommended to explore opportunities for integration of such subject in the assessments, namely in NSoER and statistical yearbooks - EPSD;
- In reporting on **biodiversity** to focus on improvement of the reporting from administration of protected areas on the base of "Nature Chronicles" and to explore the opportunity to involve international expertise, initiate the dialogue with involvement of ASK over development of more reliable reporting form from administrations of protected areas;
- **Wastes**, specifically municipal ones, are subject for major improvement on provision of reliable data and information for NSoER and statistical reports in EPSD, reports to MEAs. It is to be recommended to make a considerable revision of basic reporting forms from municipalities and enterprises for said purposes, possibly with involvement of the international expertise and good international practices from the Pan-European region.

4.3.2. Kyrgyzstan

It is recommended to Kyrgyzstan, since country depends much of ODA on project basis for periodic reporting to MEAs, to integrate project components, which could contribute to the consistence and system base of data and information supply for reporting developed within these projects.

There were several findings in this AoA on gaps in national statistics, data from KyrgyzHydromet and other responsible institutions for NSoERs and reports to MEAs. In order to address these gaps there following is recommended:

- To consider opportunities within ODA funded projects and national programs on development of the environmental monitoring under the KyrgyzHydromet and other institutions with stationary or field observations over the environment and nature resources to integrate components on improvement of environmental data and information consistency and availability;
- To use the opportunity through the interagency working group on SEIS and the special interagency working group on environmental statistics, established under NSC, to

consider major issues of the environmental statistics and formulate needed requests on their improvement;

- As of the request of members of the working group on SEIS to welcome ODA contributions toward improvement of the environmental data and information flow, including through the MONECA, it was recommended to explore opportunities for:
  - Analysis of the gaps in the whole process of data gathering, aggregation and provision for Fifth National Report on **Biodiversity** to UNCBD and organising targeted contributions, from which other reports to MEAs and next NsoER may benefit as well. Here is the specific focus is to be made on basic statistical reporting of entities and institutions to NSC and follow up aggregation and analysis of them;
  - Holding of special trainings on PRTR for experts in SAEPF, enterprises and NGO, which will add the capacity to improve data and information on emissions of GHG and air polluters;
  - Holding training sessions in NSC for development of analytical capacities in production of environmental indicators and their interpretation/presentation;
  - Assisting in development of green economy indicators;
  - Selective support in development of statistical reporting forms for improvement of water and land use statistics.
  - Assistance in digitizing data of KyrgyzHydromet, needed for reporting to MEAs and in its storage;
  - Assistance in development of Joint/National Data Base of environmental data and information, which could add on to the consistency of data and information for reporting to MEAs and NSoERs;

In considered thematic areas, based on major finding of current AoA it is recommended:

- In-depth analysis of causes of very weak data basis and national statistics on **air** pollution is vital, including analysis of the legal basis. Improvement of statistical reporting forms on air pollution is to be considered with specific focus on presenting per sector pollution. Since assessments on air do not consider the air pollution per related monitoring, there is a need to explore opportunities of its integration in to reporting;
- To ensure better access to the data of KyrgyzHydromet on air temperature, atmospheric precipitations for is vital. It is to be ensured that the data for reporting on **climate change** is accessible through the national institutions, but not through individual experts, for which the establishment of the Joint/National Data Base could be instrumental. Emissions per related monitoring (observation or modeling) are to be integrated to the reporting at list to NSoER, which could give the picture of shares of factual monitoring and modeling/estimations. There is need in building modeling/estimation capacities of experts and for which the experience of Kazakhstan in through preparation of NIR GHG can be used;
- All statistical reporting forms on **biodiversity** are to be revised and possibly upgraded for the purposes of improved reporting to MEAs and NSoER. Clearer scope for presenting ecosystems and habitats is to be introduced for NSoERs;
- Like in Kazakhstan **wastes,** specifically municipal ones are subject for major improvement on provision of reliable data and information for NSoER, statistical reports, reports to MEAs. It is also to be recommended to make a considerable revision of basic reporting forms from municipalities and enterprises for said purposes, possibly with involvement of the international expertise and good international practices from the Pan-European region.

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ANNEXES

Annex-1: List of sources uploaded to the EEA Virtual Library*

Annex-2: Country Fisches on assessed thematic areas for Kazakhstan and Kyrgyzstan

Annex-3: The status of Kazakhstan and Kyrgyzstan with MEAs

Annex-4: Country Tables on relevance of selected assessments to the UNECE environmental indicators, EEA set of sub-topics and subjects

Annex-5: Country Tables on DPSIR observance in selected assessments

*- all Annexes are only available with major on-line publication of the Assessment of Assessments uploaded on the web-sites of EEA, UNECE and CAREC at: